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A History of the **Earthquake and Fire** in **San Francisco**

**An Account of the Disaster of April 18, 1906
and its Immediate Results**

By

Frank W. Aitken and Edward Hilton

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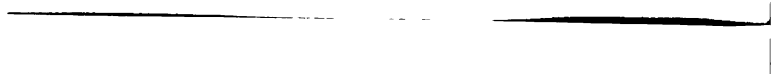
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San Francisco
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1906

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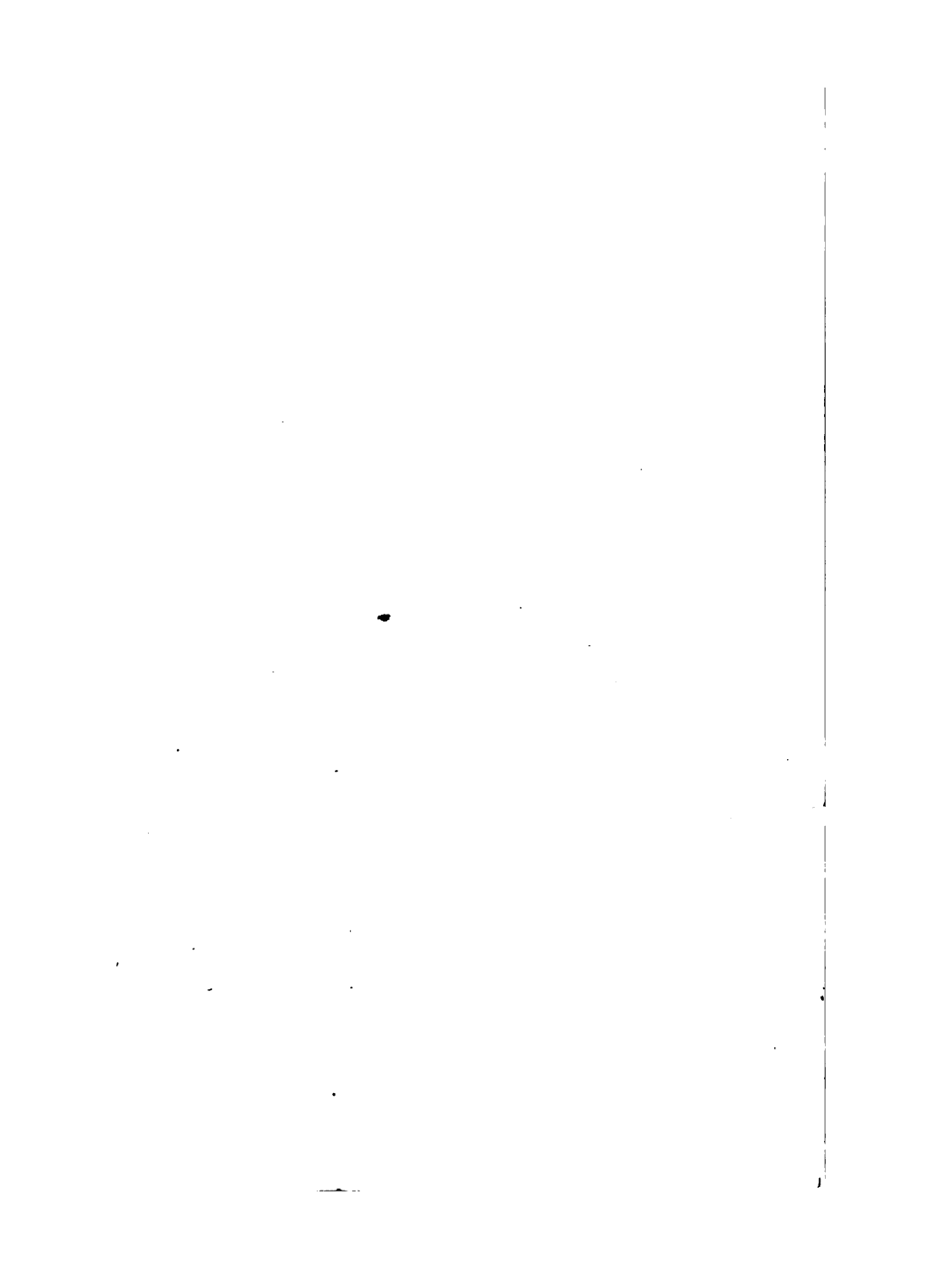
FRANCISCO

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A History of the Earthquake and Fire in San Francisco

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THE OLD SAN FRANCISCO

In some vast travail of a bygone age a peninsula was born. Its birthright was a harbor (land-locked save for its Golden Gate) and, beyond, an empire of unrevealed wealth. For untold ages it slept; the child-dream of power stole upon it. Suddenly it woke and looked upon the sail-capped waters of its harbor. What had been a lonely stretch of sand became a city.

They called it San Francisco.

Founded as a Mission outpost by far-journeying Franciscan friars in 1776, it grew but slowly until 1849. Clustered around the Mission Dolores and the Presidio, or around the sheltered cove of Yerba Buena, under the brow of Telegraph Hill, where an occasional ship dropped anchor to trade for hides, the people had little to do but amuse themselves with their loves and foibles; to go to horse races and bull fights, fiestas and fandangos. They were as carefree as the fat herds that roamed the rich valleys of their nearby ranchos.

In 1849 came the awakening, with the rush of thousands of adventurous argonauts in quest of the wealth that lay in the Californian mountain sides and valleys. The dreaming peninsula was the natural port of entry and base of supplies for the gold-seekers, and straightway a little settlement grew up at the Yerba Buena cove, where thrifty "Americans" traded for the gold their fellows brought down from the mines. A city sprang up after the

fashion of any frontier settlement; wooden shacks to shelter traders and gamblers and saloon-keepers; beyond, the insubstantial homes of their various families.

Three years before Captain Montgomery of the United States war sloop "Portsmouth" had planted the American flag in what subsequently became Portsmouth Square; but that act alone could not make the mission-military town American in its habits. The loves and intrigues and fandangos went on just the same. The men of '49, restless, tired of clap-trap conventions, ever ready for new sensations, came along and fell into the ways of the natives—began to live their easy-going life.

Those first days of San Francisco, the American, were such as might have been expected, where many men of many sorts were thrown together without any common tie—where the law was weak and men's passions were strong. They were days



Hecht Collection

Mission Dolores, from an Old Print



Hecht Collection

Early San Francisco

marked in passing with crime and greed and debauchery; with hardship, and many an unwritten story of privation, and of fortunes made in a day, and gambled away over night.

It was a hardy, rough-and-tumble people that formed that first settlement—men from many climes. The sturdy stock of New England mixed freely with old England's younger sons, and the men of "the continent," and with the hot blood of the Orient and the Equator. They were a happy lot, too, light-hearted, indifferent, taking things as they found them, in serene contentment.

That beginning gave to San Francisco an individuality and a glamor of romance all its own. The start was picturesque, cosmopolitan; and through all the years a carnival spirit of light-heartedness has been the motif of the people. Always it has been San Francisco the golden—a city of adventure; a city of legend; a city of many peoples; a city of the Arabian Nights. Of it Bret Harte well sang—

"Serene, indifferent to fate,
Thou sittest at the western gate;

Thou seest the white seas fold their tents,
Oh, warder of two continents."

Out of that settlement around Yerba Buena cove, that chance stopping place of people bound for the mines, a city grew, almost in spite of itself. Soon came ships bringing merchandise from all over the world, the treasure of two continents. Various business interests allied themselves with its destiny. In 1853 the population had grown to be 36,000. The road to the Mission Dolores had become Mission

street, planked throughout its length. California street, for a distance of three blocks, was a thriving thoroughfare. The city had stretched out to the base of Telegraph Hill on the north, and back to the foot of Nob Hill on the west. It expanded southward; soon Market street was extended a block into the bay and graded with sand from the Montgomery street hills. The bay end of the street was then four blocks from its present location. On the west it ended at the line of sand hills parallel with Montgomery street. A little further west, where a creek meandered through a cemetery, (the present site of the City Hall), there was a favorite hunting ground, far out in the country.

Ten years later the city had 90,000 people. The Latin quarter had sprung up at the base and on the sides of Telegraph Hill. Chinatown had become quite a village on the slopes of Nob Hill, to the west. The American city had expanded out over the tide flats. Gradually high-water mark receded further and further eastward, and buildings appeared on the filled ground. Many were supported on piles in the



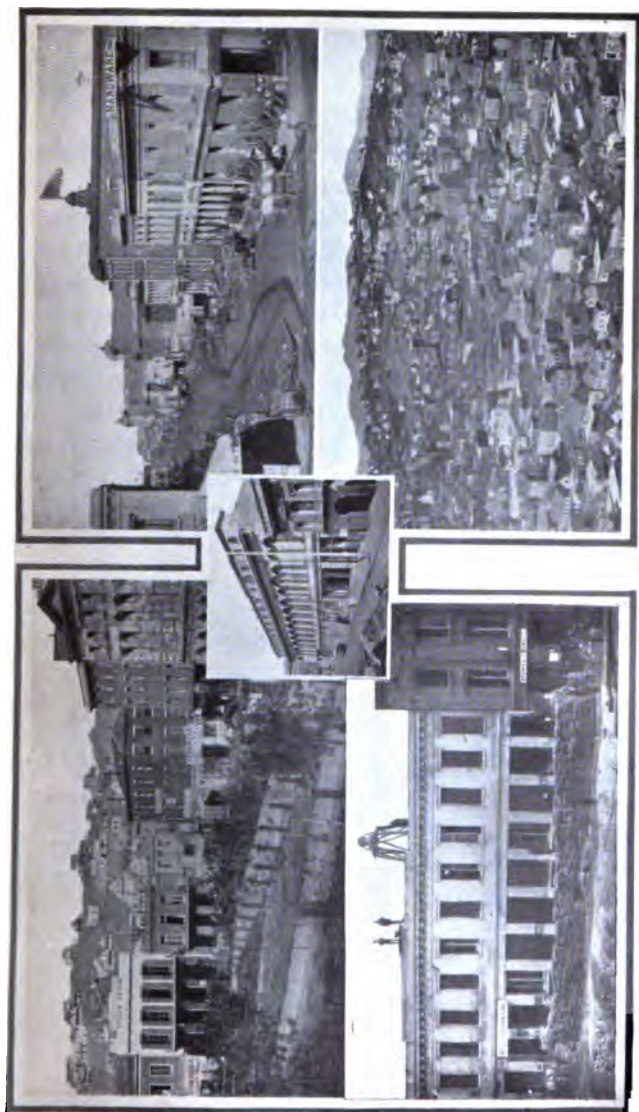
Yerba Buena Cove in 1849

Hecht Collection

water, some only on a loose filling of whatever came to hand. A stranded ship on the beach was righted and converted into a building. Finally, when all the filling-in was done, this ship, buried under the foundations of a tall building, was a full quarter-mile from the new water-front. The people were of the pleasure-loving type in '63 as in '49. They worked by day and spent their nights in Bohemian fun.

In 1868 the building of the Palace Hotel was commenced. After completion this hotel was recognized for years as the finest in the world. About this time the Central Pacific Railroad was completed. Overland communication by rail with the east bore quick results. One by one various activities—commercial, manufacturing, financial—centered themselves around the city's harbor. San Francisco became the metropolis of a vast territory—a world power. Its trade was established. Montgomery street became a Wall street in miniature; the city was the financial center of the rapidly developing west. Prosperity smiled upon it. Wealth poured in from all sides. Its increase in population and trade was phenomenal. The glamor of wealth and magic growth surrounded it.

Following the advent of the railroad had come wonderful development. To the men interested in it the road brought fabulous riches; and, drunk with sudden wealth, they — Huntington, Stanford, Crocker — erected palaces on Nob Hill, each trying to outdo the other in the splendor of his mansion. A few years later they were joined by Fair and Flood of the Comstock, upon whom, also, fortune had suddenly showered untold wealth. Nob Hill, thus



Collection

PORTSMOUTH SQUARE
"FORT GUNNYBAGS"

San Francisco in 1856

CALIFORNIA THEATRE

BATTERY STREET
NOB HILL

crowned with dwellings that had cost hundreds of thousands of dollars to build, became known the world over.

As in the early days, so later; the prodigality of many who had won fortunes on the Comstock gave an air of romance to San Francisco, and a reputation (which it never lost) for open-handed, lavish spending—for generosity, hospitality, love of fun. Sprung romantically from the mixing of many races and many types, it retained to the end its cosmopolitan picturesqueness. It has always been a city of men of all kinds and many inclinations.

From the first San Francisco has been gay and pleasure-loving—the lightest-hearted of cities. It adopted a bit here and there from the customs of its various races, and acquired a manner of life quite its own.

As far back as the days when Barrett and McCullough played in the stock company of the Cali-



Market Street in 1856

Hecht Collection

fornia Theatre, the city has been a chosen home of the drama. So, also, has it been noted as a place of highly cultivated appreciation of music and art. From the days of Bret Harte and Mark Twain it has been the center of a widely-known literary circle. Thousands of people throughout the world have known of Stevenson's lounging days in Portsmouth Square, where he conceived "The Wreckers," who had no idea of the city's population or the amount of its trade.

But San Francisco was not all fun and gayety and pleasure. \ In 1906 it counted its population as four hundred and twenty-five thousand. It had become the seventh city in the United States in volume of bank clearings. Its annual exports amounted to sixty-five million dollars; its manufactures to two hundred millions. ✓

Through all it seemed still "serene, indifferent of fate." The surrounding region poured wealth in upon it, and it was satisfied. Taking its good fortune and luck for granted, it seemed always to be sitting in the midst of wonderful opportunities, indifferent to them. Always, too, it had remained the wonder city—the city of picturesqueness, of romance; the city that was neighbor to the ends of the earth — Alaska, the Orient, the South Seas.

\ Meanwhile the city had grown out to cover much of the peninsula—had scaled the hills and spread through the intervening valleys. Along in the sixties the Supervisors were discussing whether it would be advisable to limit purchases of land west of Van Ness avenue to fifty acres, and if those lands would bring \$6 an acre. They doubted if they could

give title to them anyway, as the "sand lots" (a term general then to all ground west of the avenue) were continually shifting. No way had been discovered to tie the land down to the survey. In 1906 block upon block of houses covered the sand lots of old, and if one would buy, one must pay hundreds of dollars per front foot. /

During the seventies the cable road had overcome the hills, and gradually the most distant parts of the city became accessible. Van Ness avenue, at the western base of Nob and Russian Hills, had been the farthestmost limit of the city; now the "Western Addition," stretching far beyond it, came into being. Market street became the main thoroughfare. On the north, at varying distances, were the hills. Just beyond the site where the City Hall was afterward erected, Hayes Valley, known as Happy Valley until Thomas Hayes began to exploit it, stretched some distance to the west. South of Market the city had grown out so far that by 1906 the Mission Dolores, once a part of the far-country, seemed almost downtown. Far beyond it lay blocks and blocks of close-built residences.

Everywhere the houses were wooden; here, too, the city showed its serene indifference of fate. Visitors marvelled at the great frame city. Insurance men shook their heads, foretelling a tremendous conflagration some day—a conflagration that would almost blot out the memory of the great fires of the past—London, Moscow, Chicago, Boston—in its greater vastness.

San Francisco had had plenty of experience of the fate that was to overtake it. Five times in the



Photos by Waters & Hecht

Skyscrapers Before the Fire

early days it was devastated by fire, and five times it was rebuilt. It was with grim pride, therefore, that the city made the legendary Phoenix a part of the design of its official seal, in 1850, but without any idea of the task the Phoenix city would later have to perform.

II

THE EARTHQUAKE

April, 1906, found San Francisco living its life intensely, pulsating with the vigor of achievement and hope, full of the "joy of living." The year had been one of unexampled prosperity; trade had never been so brisk, business never so good before. Again and again the real estate sales, the building operations, the volume of business, had surpassed all records. Population was increasing with wonderful rapidity. Never had the city's future seemed so bright, its destiny so certain, as in those early days of April.

San Francisco had probably never been more care-free, in all its laughing years, than on the night of April 17. Easter Sunday had just passed and a new season of jollity had begun. Society was awhirl with a merry dance of pleasure. Festivities were everywhere. Theatres and other places of amusement were thronged. The Metropolitan Grand Opera Company had just started upon a long engagement at the Grand Opera House. That night Caruso, in Carmen, was at his best. The house was filled to the foyer, and the great audience left the theatre still thrilled by his magic tones.

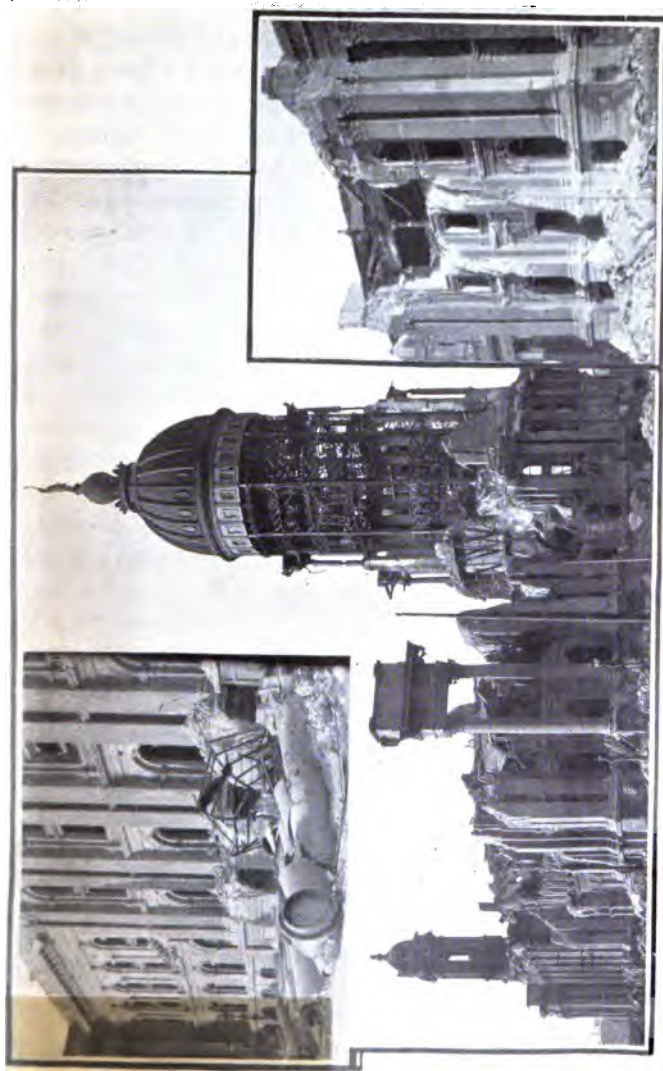
Toward midnight the cafés and restaurants began to fill. Parties dropped in for those quiet little suppers that were a part of the city's fame. The rattle of dishes and clink of glasses, a merry laugh or a happy chuckle, a snatch of a stage joke

or a bit of repartee, perhaps a play on some word—this for an hour or two; then all was still.

The city slept. A lone policeman on his rounds, the clanging bell of some owl car anxious to be off the street, the tread of a newspaper man or so hurrying home, mayhap the uncertain antics of some befuddled fellow—scarcely more than this anywhere. The city slept, unconscious of the manner of its awakening.

Slowly the stars faded into oblivion; dawn crept over the hills; some sleepy folk were getting their wares out for the early buyers. A sudden rumbling hurried closer and closer. The houses of the sleeping city shook as if seized with a sudden ague. At first came a sharp but gentle swaying motion that grew less and less; then a heavy jolting sidewise—then another, heaviest of all. Finally a grinding round of everything, irregularly tumultuous, spasmodic, jerky. It was as if some Titans, laying hold of the edge of the world, were trying to wrest it from each other by sudden wrenchings.

Plaster showered from the walls; nails creaked in their sockets, and pulled and wrenched, and tried to free themselves. Crockery and glassware smashed upon the floor. Doors flew open—swung round—jerked off their hinges. Furniture toppled. Pianos rattled their keys in untimed janglings. Chimneys snapped and fell. Houses groaned and twisted and reeled on their foundations. Outside, streets were seized with writhings. Hill-sides slid. The city shook itself like a dog coming out of the water.



by *Waters and Aiken*

City Hall After the Earthquake

People ran from their houses and crowded into the streets. In hotels and other places where many lived under one roof, the commotion nearly reached a panic. They crowded and jostled one another in their flight down the stairs, and, reaching the street, ran about in vari-colored night garments, overawed by the unaccustomed experience. Some women screamed, some wild-eyed men wept in the frenzy of their fear. And as they ran and wept and screamed, the temblor ceased. Abruptly it was gone—mysteriously, without warning. / Some said it had lasted two minutes—five—an eternity. In reality it was over in forty-eight seconds.

Throughout the city was heard the grating and grinding and rattling of houses, and the crash of falling chimneys. In the neighborhood of the City Hall the noise was appalling. The heavy iron columns filled with concrete, with their massive cornices, on the west and south sides; the greater portion of the dome; and much of the roof of the south and west wings, of that great monument of graft and incompetence, fell with a crash into the street. Across Market street the roof of the Majestic Theatre fell in. Other buildings down town collapsed. As the crashing of falling walls and subterraneous rumblings died away, there came the cry of dying horses, the appeals for help of men and women pinned beneath the debris, and the laughter of a few hysterical ones; while here and there explosions of gas escaping from broken mains occurred with loud reports.

The first wild moment passed, an intense quiet pervaded the people of the city. Cowed and silent,

tongue-tied by this manifestation of the supernatural, they huddled, half dressed, in the streets, and looked at the swaying roof-lines silhouetted against the half-lit sky. Then some, from courage or shame, went inside to dress; others had the hardihood to return to bed for one more nap. In the streets a few low words were spoken—the hushed words of a great fear; but in the main the people waited objectless in the streets, wondering if it was all over.

Then the drollery of the situation broke in upon them. It occurred to them that their sudden unclothed flight was undignified, even ludicrous. Some began to smile, shamefacedly; others crept under cover. The suspense was over; straightway all began to talk and gossip. The earthquake was a general introduction; everybody knew everybody else. They laughed together at chimneys sprawled in the street, and houses tilted out of plumb. Tales of the freaks of the temblor began to circulate—of chimneys that were cracked across but not thrown down, of bronze that broke and china that survived. Soon everybody knew that Jones' house had moved on its foundation, and that Smith's marble steps had cracked, and that Brown's chimney was split across but still stood, and that Black had run frightened into the street and then dressed on the front porch.

Throughout the greater part of the city — north of Market street, and out in the Western Addition, and over in the Mission — there was never a thought that the earthquake would be found any different in its results from any other. It was a heavier shock than usual — that was all.

9



Photos by Moller, Estey, and Derleth

Buildings Damaged by Earthquake

PARK MUSEUM

It became a holiday—a carnival. Leaving their bric-a-brac where it lay, people went to see the sights, to laugh at their neighbors' experiences, and to congratulate each other that it was no worse. They set out to go down town. Crowds collected on Market street to see if any damage had been done to the big buildings. They sauntered along easily, and laughed at the strange appearance of rooms exposed by the falling of the front walls, and at the terror the occupants must have felt. They smiled knowingly, and murmured "Graft" as they saw the City Hall walls lying in the street. An occasional business man hurried along, anxious to protect his records. But for the most part the procession was one of curious sightseers.

The smoke of many fires rose before them, and they wended their way to vantage-places, with never a thought that the fire department would be unequal to its task. Never before had it failed to handle every fire that occurred; always it had protected them and their wooden city from the greedy flames.

They were in the best of humor. When the soldiers took possession of Market street, the people took to more circuitous routes without complaint. They had not waited for breakfast at home, and soon discovered that they could get none down town. They walked far before they discovered that the cars were not running. It was a long way home. Yet they were happy, for they were viewing a spectacle that was worth while.

It was all a play — a fantastic comedy. This, north of Market street.

(South of Market the play was a tragedy. There the decrepit ramshackles, remnants of another generation, flimsy with age, tottering on their foundations, had fallen into masses of splintered wood. Cheap lodging houses and hotels had gone down burying their guests in the ruins. Quickly, on the wings of terror, spread the news — that many buildings were down and many people injured and dying; that fires had started all about.

Hereabouts dwelt one-sixth of the city's population. Here the roll of the dead was longest, here the fires sprung up the quickest, and spread, uncontrolled, with greatest fury, leaping across the little by-ways, and racing pell-mell from street to street.

It was an agony of fear. People saved a little, whatever came handiest—needful or useless—and waited for the moment when they must give up their little remaining hope and flee. Some there were, not strong enough to wait, who gathered up their pitiful bundles in panic and hurried out into the suburbs. Many struggled bravely to rescue the injured from the oncoming flames. From the first all there saw the coming of Ruin and Death.

In addition to the innumerable tumbledown structures which the earthquake brought to the ground as scarce more than kindling—in many of which people were pinioned and burned to death—a number of hotels and lodging houses collapsed, and buried in their ruins many who could not be extricated before the fire reached them. Such were the Cosmopolitan, the Brunswick, the Denver.

Wild rumors of cruelty and greed and murder among the injured afterward got about; stories of



Photos by Dana, Estey, Hecht, and Knight

Buildings Damaged by Earthquake

GIRLS' HIGH SCHOOL
OBSERVATORY

NORTH BEACH POWER HOUSE

STORAGE WAREHOUSE
HAHSEMAN HOSPITAL

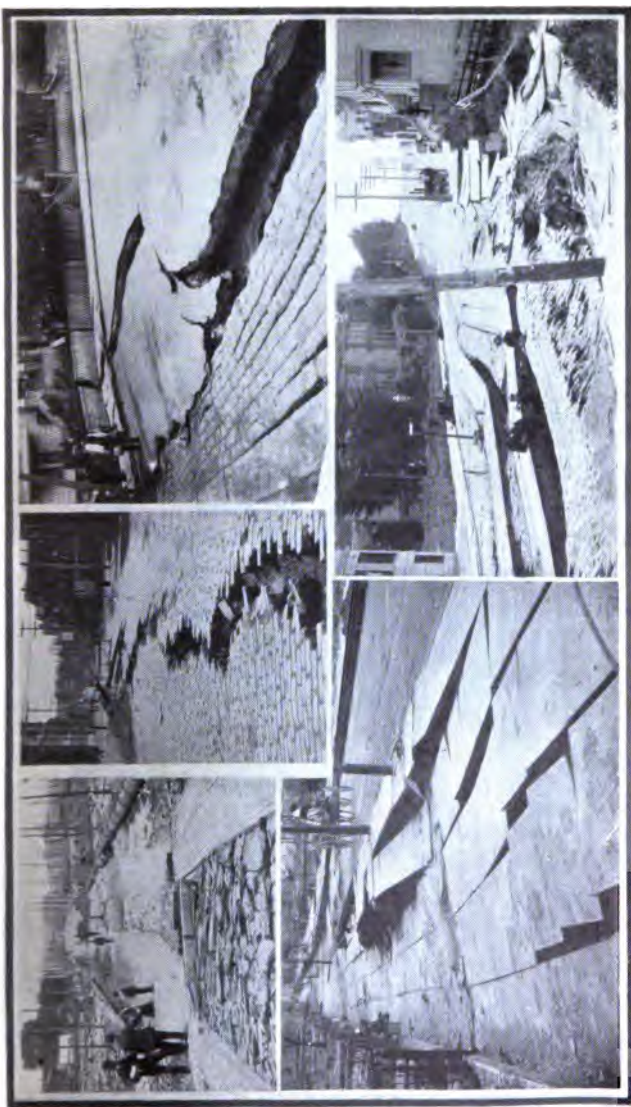
men who begged to be killed, and others who cursed their mothers, of parents who left their wounded children unaided, while they, unheeding, made their selfish way to safety; stories, too, of fiends who cut rings from the fingers of the dead, and of swift punishment by quick-shooting soldiers. But followed out to the end most of these stories have been proved mere rumors, the weird hallucinations of overstrained minds. To the eternal credit of mankind it is known that here uncountable deeds of big-hearted, unselfish kindness were done; and that many who died beyond the reach of help closed their eyes without complaint—stoics to the end.

The people who had gone about sightseeing after the earthquake found much to interest and amaze them. Although the big buildings downtown



Photo by Derleth

East and Pacific Streets — Mission and Seventh Streets



Photos by Dona, Weidner, Knight

Damage to Streets

VAN NESS AVENUE
UNION STREET

EIGHTEENTH STREET

VALENCIA STREET
CAPP STREET

seemed entirely uninjured, there were startling instances of the earthquake's power in various parts of the city. Imposing brick and stone buildings had collapsed, streets and car tracks had been twisted out of shape, in a few neighborhoods that seemed to have been especially hard-hit by the shock.

At the City Hall hundreds of tons of brickwork had crashed to earth; in a moment the once imposing building had been stripped of all its pretense and its seeming strength. Half the building was in ruins. The great bronze dome, three hundred and thirty-five feet in height, rose airily out of the huge piles of brick that had been its walls and columns, its frame seeming strangely slight in the absence of the brick work which had surrounded it and lay in monumental ruin below. A group of massive columns, with their gigantic cornice, crashing into an apartment house across Larkin street, brought down its whole front wall.

The Majestic Theatre building, a short distance away from the City Hall, was also demolished. Half the roof fell in; at both front and rear the walls fell away for half their height.

The Hall of Justice, on Kearny street opposite Portsmouth Square, lost much of the brickwork of its tower. Out in the Park one end of the refreshment house at the children's playground—a picturesque lodge, of brick covered with sandstone—completely collapsed.

At the Girls' High School, which cost over \$90,000 to build, great quantities of the walls fell, and all around the building cracks zigzagged up and down the bulging brickwork.

In the same neighborhood as the Girls' High School stood St. Dominic's Church—a massive structure of brick covered with cement. One of its lofty spires was completely stripped of its covering. From the companion spire all the brickwork of the tower proper fell away, leaving only the rounded, dome-like top, like a giant toadstool balanced high on its fragile stem. The walls of the church spread; the roof fell in; great cracks split the structure clear to the foundations.

A few other large buildings met the same fate—the Beth Israel Synagogue, the Scottish Rite Temple, and the Knight Templar Asylum, all within a few blocks of St. Dominic's. In each case, the story



Photos by Waters, Derleth, Hecht

Tilted Houses

was the same: much of the walls fell away; the roof dropped; the wreck was complete.

A storage warehouse of four stories nearby presented a unique spectacle. On all sides the wall of its upper story had fallen, leaving exposed to view the varied collection of household goods stored within, so that the roof seemed to rest on nothing but the close-packed goods beneath. Further down town, in the district of hotels and apartment houses, other brick structures lost one or more stories from their façades in the same way.

Apart from the large brick buildings so damaged, and the numerous wooden shanties destroyed, the most striking manifestations of the power of the shock were to be found in its effect on the earth itself here and there in various parts of the city.

On Valencia street, near Nineteenth, about a mile southwest of the City Hall, stood the Valencia Street Hotel, a four-story wooden structure. The earthquake spilled it out into the street. From the windows of its upper story the guests stepped out onto the car-track; but in the rooms below some twenty persons were crushed to death. The street, in front of the hotel, is twisted far to one side, and has dropped several feet below its level; the cable tracks, heavy concrete conduits on steel yokes, are bent sharply aside and broken, as if made of clay. On Howard street, two blocks away (just beyond the fire line), a row of houses leaned drunkenly on each other for support. Through here ran Willow Creek years ago; and even yet, perhaps some of the waters find their outlet beneath the loose soil which has been placed on the old bed. It was on



Photos by Estey

Demolished Frame Structures

GOLDEN GATE AVENUE
REAR OF VALENCIA STREET HOTEL



LAPPAGE AND EIGHTEENTH STREETS
FRONT OF VALENCIA STREET HOTEL

this filled soil that the Valencia Street Hotel stood, as well as the leaning houses on Howard street. When the earthquake shook things up the whole fill settled a little more compactly and slid a few feet along the course of the creek. Sidewalks and pavements and car-tracks were twisted; houses reeled from their foundations; water pipes (one of them forty-four inches in diameter) were torn apart. Brick foundations at the edge of the fill cracked across and sagged; the side walls of the Youths' Directory, a four-story brick building, resting on ground which moved unequally, split from its base clear to its cornice.

Fully as interesting as the row of houses on Howard street were those on Van Ness avenue, near Vallejo street, far to the north. Here the whole side of the gently sloping hill had been brought up to the grade by being filled with sand, and here some of the most interesting results of the earthquake were shown. On Van Ness, just above Vallejo, the street lengthened out. The cement squares of the pavement, separating, tilted slightly on the shifting sand beneath, and, twisting about with the shock, arranged themselves fantastically en echelon. The bituminous pavement, on its concrete base, split from curb to curb in several places, and, sliding down the hill, produced alarming fissures, in some places, and in another a ridge of jammed-up ends of bitumen, a foot in height. Houses and fences and backyards on the hillside moved down the hill; strange curves appeared in the retaining walls along Vallejo street. But while the effect of the earthquake here was startling, the amount of actual dis-

placement was small, four feet, with a drop of about two feet in Vallejo street. On Union street, near Pierce, however, the car track was shoved some six feet to the side and dropped almost as much. The sidewalk, indeed, dropped several feet. The street there, however, was merely a fill on a side hill; when



St. Dominic's Church

Photos by Aitken

the earthquake came, it slid down into an adjoining truck garden.

Lower Market street, and the other streets on made land near the waterfront, sank noticeably, though without such picturesque results. Some old buildings tilted and twisted and leaned queerly and lost much of their brickwork, and in some cases roof-trusses unseated themselves.

(These were some of the things seen by the crowds who wandered about the streets after the temblor. No one, individually, saw very much of the damage, for soon the people looked at the sky. Smoke was curling heavenward in many places — lazily, with all the assumption of a fiend sure of its power.

III

THE FAULT LINE

We do not have to go far afield to find what sort of thing this earthquake was which thus shook San Francisco. Probably never before has an earthquake occurred which left so clear a record; for it wrote its own story for some two hundred miles, in the indelible characters of its power, on the earth itself. (While not ranking among notable earthquakes in severity, it is almost unique in the opportunities it affords for scientific study.

Of the causes of earthquakes nothing certain is known. Coming as they do from the impenetrable depths of the earth, without premonition, they defy study, except through their effects. Some earthquakes seem to be caused by volcanic activity, and others have no apparent connection with volcanoes. These latter—the San Francisco earthquake among them—occur in conjunction with tremendous earth movements along “fault lines,” indicating a sudden change of position in the rock-masses below. It is now generally believed, among scientists, that such shifting is the cause of nearly all earthquakes.

Sometimes—as in the Charleston earthquake of 1886—this shifting takes place miles underground and no surface displacement is caused. In other cases, however, the shifting of the rock-masses is nearer the surface and is communicated to the soft overlying soil, with the result that a “fault line” or “rift” appears, as in California last April.

Perhaps a homely illustration will explain what the scientists mean by faults and fault lines. If an arch of masonry be unevenly loaded, and then subjected to a severe sudden strain, by the fall of an adjacent building or by earthquake or by an explosion within its walls, its keystone is very likely to move out of position somewhat, sliding along on the adjoining stones. So with the rocky masses forming the earth's surface. According to the geologists these rock masses (merging into more plastic matter many miles below the surface) are split and cracked here and there on the surface by long fissures, extending in some cases for hundreds of miles. These cracks are known as faults, and occur most frequently between rocks of different character. The rock masses are thus similar, in a way, to the stones in an arch.

In the earth's formative period whole mountain ranges were made by the uplifting of the rock on one side of such faults above that on the other. But now such movements are trivial ones—a few feet more or less—and are felt as earthquakes. What the ultimate cause of such movements is can only be a matter of speculation. It has been suggested that the seeping of water through the faults, either from the surface or from the oceans, to the molten masses of the earth's interior, causes explosions; but the view generally accepted is that these slight shiftings are the result of changes brought about by the slow contraction of the earth in its gradual cooling; that as the earth cools and its crust shrinks, strains are produced and the weak places slip, just as, when a house is shaken by a storm, the plaster cracks in



Modeled by Prof. A. C. Lawson
Relief Map of the San Francisco Peninsula

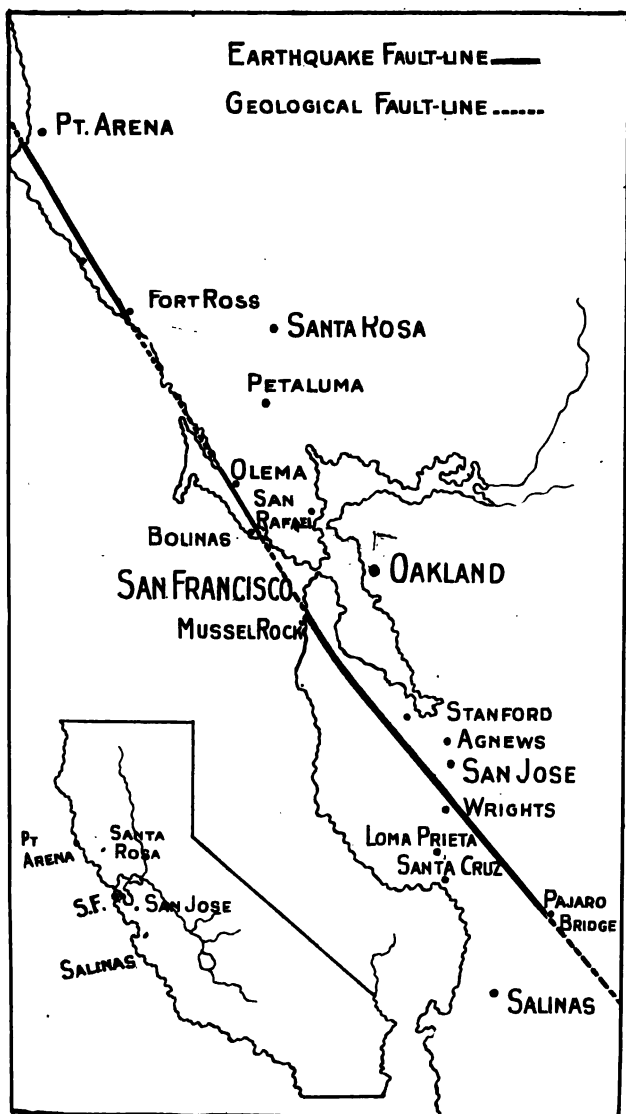
the old cracks that have been patched. These faults are the weak places—the old cracks. Volcanoes are sometimes called safety valves; the faults, similarly, may be considered slip-joints where the earth's minor adjustments are made.

The Pacific Coast, from Alaska to South America, is, geologically speaking, a weak place of this sort; as a result earthquakes are frequent. Very severe shocks have been experienced in Alaska, Mexico, Central America, Colombia, and Ecuador since 1899. The California coast has had no severe shock between 1868 and 1906.

Professor F. Omori, head of the Department of Seismology of the University of Tokio, and inventor of the Omori seismograph, is regarded as the greatest living authority on earthquakes. He spent two months in California, studying the "fault," embodying his conclusions and deductions in a report for the Japanese government. As to the causes of earthquakes he says:

"The very ultimate causes of great earthquakes are probably to be traced to the cooling and contraction of the earth, and, to some degree, the change of the distribution of the matter constituting the land and ocean bottom. The more immediate cause of such earthquakes is, however, frequently the activity of mountain-making forces which produce fracturing, etc., along an extended zone. Different external agencies which act on the earth, and many of which are periodic, may be regarded as secondary causes of earthquakes."

Such a fracturing along an extended zone near San Francisco is known to have occurred in con-



Map Showing Region Affected by Earthquake, and Line

junction with the great earthquake of April 18, 1906, —a fracture extending over a length of two hundred miles. From near Salinas on the south to Point Arena on the north there is a clearly defined fault, which extends over a long-known geological fault line of even greater length, and runs in a direct line just back of San Jose and Stanford University, and through the two reservoir lakes in which San Francisco stores its water supply. These latter are situated in long, deep, and narrow cañons which are part of the great cleft or trough along the line of this old fault. On a relief map this trough shows up very



Photos by Aitken

Along the Fault



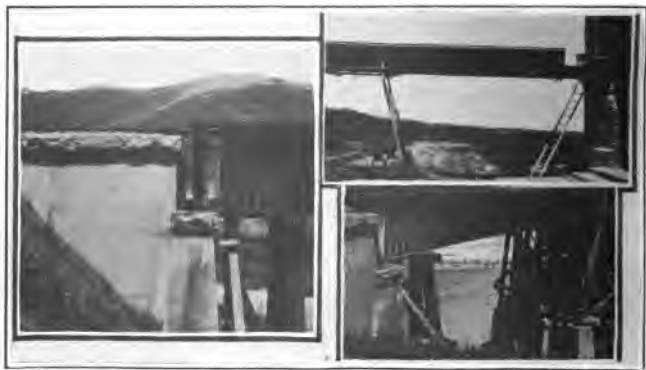
Photo by Derleth

The Fault, Near Lake San Andreas

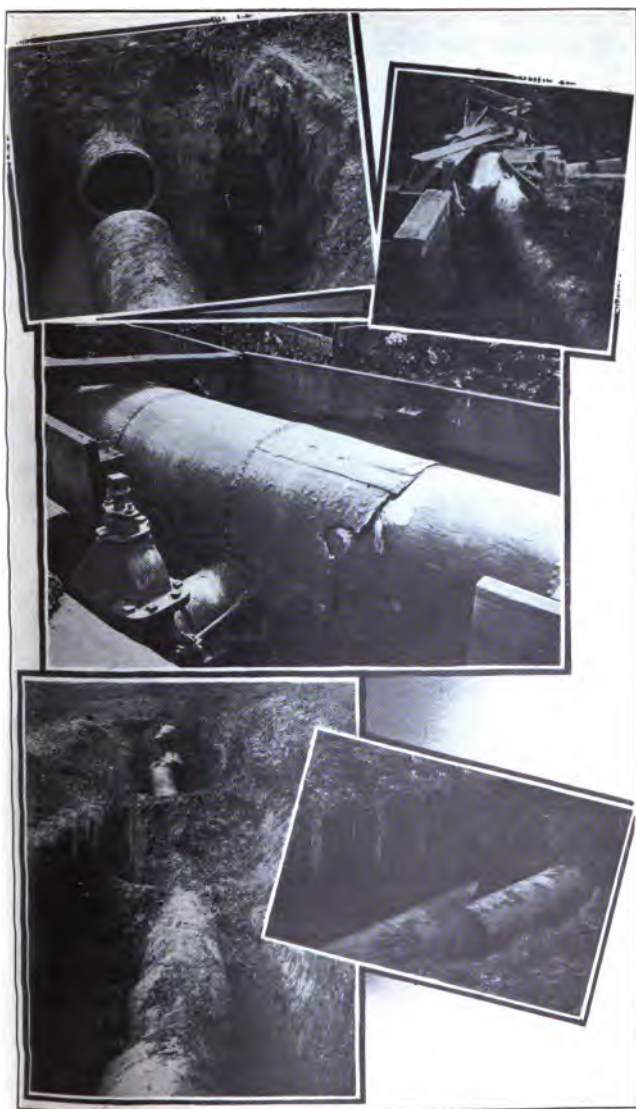
prominently. To the south it is continued by a number of similar valleys. To the north, across the Golden Gate, it includes Bolinas Bay and Tomales Bay, both long narrow bodies of water lying directly in line with the long narrow lakes already mentioned. In the vicinity of Tomales Bay was the zone of greatest disturbance; from the reservoir lakes led the water mains whose bursting left San Francisco at the mercy of the flames.

— South of the district affected by the earthquake the same geological fault continues for at least two hundred miles. It parallels the San Benito River to its headwaters, and continues in the mountains beyond. Its southern limit is uncertain; some claim to have traced it through Southern California and across the Colorado Desert to Arizona.

It is but one of a number of such faults in California. The long narrow valleys of the State, paralleling its straight mountain ranges, are no doubt



Photos by Derleth
Pajaro River Bridge and Salinas Sugar Mill



Photos by Derleth

Pine-Lines Along the Fault

largely due to streams following old fault lines. There are also many minor cracks. These numerous faults indicate that "mountain-making forces" have been in operation within recent geological times in California, and particularly in the Coast Range. Because of these numerous cracks and fissures slight earthquakes are frequent. On the other hand really dangerous shocks are very unlikely, as great strains cannot accumulate in rock-masses so badly cracked.

At some time in the dim geological past a tremendous upheaval raised a mountain-mass southwest of San Francisco. The uplift was at least two thousand feet — perhaps more — at the fracture on the west, along the present coast line. It was rather less on the east; the fracture there was the fault line along which occurred the earthquake of last April. Doubtless many lesser uplifts and shiftings and slidings took place after that first catastrophe, but gradually the sharp edges were worn away and the evidences of violent change were obliterated. In time watercourses, following the rift, gouged out the straight narrow valleys so noticeable on the map. At last only the geologist could detect the line of the old fracture; time and the elements had healed all scars. In the south its rolling foothills were a beautiful pasture-land for peaceful herds; to the north giant redwoods covered it.

For some unknown, perhaps unknowable, reason, a slip occurred along this fault at about 5:13 a. m., Wednesday, April 18, 1906. Impelled by a tremendous force, the land to the west of the fault shifted with a sudden, rapid motion, toward the

north—six feet in some places, eight or ten on the average, twenty in the region around Tomales Bay—cracking and twisting the soft surface, and throwing down whatever was in its way. From the line of the fracture the shock went far and wide. The displacement and readjustment was almost instantaneous, but throughout the fault the rock-masses bordering it swayed and grated and ground on each other, as they settled into their new relation. Quick, sharp vibrations went out from it in all directions



Photos by Aitken

Fault Line Views

ROAD NEAR OLEMA

CRACKS ABOVE OCEAN SHORE RAILROAD
SHIFTING ON FAULT LINE

through the rocks; California shook as a house shakes in a heavy wind. Slower vibrations, heavier, wider, went out across the sands and soft soils of the valleys, as waves go out from a pebble thrown into a quiet pond. At new places along the fault and weak places on other faults, there were new slippings and fractures, and from them new waves of vibrations went out, crossing the others, joining with them, jostling everything about sidewise, until all the region was thrown this way and that, back and forth and across and up and down and about in an indescribable confusion — buffeted about like a ship in a storm when wind and waves seem to assail it from all sides at once. The whole earth swayed in unison; delicate instruments thousands of miles away — in Tokyo, Potsdam, Sitka, and Washington — recorded the motion.



Photo by Aitken

Landslide Along Ocean Shore Railroad

At these far-away observatories the instruments showed a gentle swaying back and forth, renewed with each new quake, three in all. But the record at Oakland shows a complex motion which is a veritable wilderness of crisscrossings. The see-saw, it has been said, was followed by a twister. The complexity of the movements involved in the twister can be realized by attempting to make a marble in a plate traverse such a course as is shown by the earthquake "signature" written by the seismograph at the Chabot Observatory.

It was this twister, with its sudden jerkings and reversings and spasmodic joltings, that did the damage in the cities near the great fault. Along the fault itself there was a pulling apart and jamming together and destruction of fences, bridges, pipe-



Photo by Aitken
Railroad

lines, trees, or whatever else happened to be in the way; in the nearby cities whatever stood high and insecure was unbalanced by the swaying, or thrown down by the "twister."

In passing across the ocean bed from Mussel Rock (eight miles south of San Francisco) to Bolinas (a point on the mainland across the Golden Gate) the quake gave to San Francisco the severest shaking-up it had ever had. Many things seemed to show the tremendous power of the temblor. Yet while there were striking instances of damage to streets and buildings, such cases were notable rather than many. Apart from the damage to plaster and bric-a-brac and plate-glass show windows, and the throwing down of chimneys, the damage in every case was due to "filled ground" or poor construction — the houses and streets that had gone down had done so because the ground slid out from under them; and the imposing structures which had collapsed had failed simply because their pretentiousness was all pretense. The City Hall, the Hall of Justice, the Girls' High School, a synagogue, a memorial temple, a fraternal hall — what a



Photo by Aitken

General View of Slide near Mussel Rock



Photos by Aitken

Views of Slide near Mussel Rock

(catalogue of graft! These are the structures most severely injured.

South of San Francisco the fault extends from near the town of Salinas, about one hundred miles south, to where it enters the sea at Mussel Rock, just south of the county line. Between these points it follows almost as direct a course as if laid out with a "straightedge." North of the Golden Gate it appears at Bolinas Bay, about twenty miles from Mussel Rock, and directly in line with the course of the fault, and continues as far as Point Arena, ninety miles northward, where the line followed by the fault runs out into the ocean, getting further and further away from the Coast. In length this fault greatly exceeds that made by any other earthquake known to science. It is over three times as long as that of the great Japanese earthquake of 1891.

Across the rolling hills and valleys between Salinas and Mussel Rock it shows itself as a sharp crack in the earth, along which a slight dropping on the west side is apparent, or as a belt a yard or so in width, of loosened and upheaved earth and up-tilted turf. A few yards away on either side are similar cracks of smaller size. Where the fault meets a road or fence or other artificial thing, the shifting of the earth is plainly seen.

At Salinas the shock caused the land on one side of the river (which flows in the general direction of the fault) to slide toward the stream a distance of about six feet, thereby reducing to that extent the width of the river bottom. The Salinas sugar factory, an immense structure of five stories, was on the portion that moved; the tracks of the lit-

the railroad on which the beets are run into the works are pulled apart several feet. The building itself, of steel frame construction and well braced, was only slightly injured. The brickwork was cracked here and there, and in the center, where the massive machinery prevented the placing of much crossbracing, the side walls bulged slightly. Salinas is several miles from the fault line.

The steel railroad bridge across the Pajaro River, having five spans resting on concrete pillars, was directly on the line of the fault, crossing it obliquely. It affords a striking example of the power of the temblor. Here one side of the river bank moved away from the other eighteen inches. As a result the bridge was pulled apart at one end, the concrete abutment sliding away beneath the tremendously heavy plate girders which rested upon it, so far that the latter had little more than the edge to support them. Beyond, one of the massive concrete bases of the bridge spans — some fifteen feet through in either direction — was cracked from side to side and the truss resting on it shifted, and the whole bridge was twisted out of alignment.

Northward, the fault crosses the Santa Cruz mountains. At Loma Prieta it caused landslides from both sides of the cañon and buried a lumber mill one hundred feet deep. Near Wrights it split the roof of the railroad tunnel which crossed it, seven hundred feet below the surface, and loosened great quantities of crushed rock; also, it blocked various tunnels with landslides.

Further north the fault runs through the properties of the Spring Valley Water Company, from

which San Francisco draws most of its water supply. The great Crystal Springs dam of stone and concrete—one of the largest in existence—was within a quarter of a mile of the line of the fault, but is wholly uninjured.

The fault passed right through the old Crystal Springs Dam, which is of earth construction and divides the upper Crystal Springs reservoir from the lower one formed by the great dam just mentioned. The shock twisted it sharply, at the line, the western portion moving northward eight feet.

A few miles north of Crystal Springs reservoir is the San Andreas reservoir, impounded by San Andreas dam, which was directly on the line of the fault. This dam is artificial at each end, the natural rock of a pinnacle forming a short section between. Luckily for the Spring Valley Company—luckily indeed for the dwellers on the lowlands below—the fault line passed through the rock and not through the artificial portion, and although it was badly cracked, no real injury to the dam resulted. The portion to the west of the fault, however, moved northward seven feet.

No such luck availed, however, in the case of the company's pipe-lines, which afford striking evidence of the earthquake's power. For some little distance the Pilarcitos pipe-line—thirty inches in diameter—runs almost along the fault, zigzagging across it at various angles. In places it is pulled apart, the rivets shearing off as clearly as if cut with a chisel; in other places it is buckled back sharply to right or left, forming an abrupt shoulder; in others it is telescoped, one section upon another.

At one place the pipe is as neatly sheared across, diagonally, as a piece of soft rubber tubing would be if cut by a sharp knife.

Near the head of the lakes a pipe-line crosses a cañon from side to side, dropping down one hill and ascending the other. Near the bottom of the cañon it crosses the fault line at an angle like that between the arms of a capital X. It is twisted and thrust aside, as are the fences and everything else crossing the fault; but, in addition, it is telescoped in various places, a total distance of fifty-nine inches. The measurements show that the sides of the cañon are more than four feet closer together than before.

Everywhere along the fault line the fences show the same result. On both sides of the line they have the same direction as before; but at the fault line they are no longer continuous, the portion on the west being from six to twenty feet north of that on the east. The two parts, however, are still connected by short intervening lengths of fence that have changed their direction from east-and-west to north-and-south (roughly speaking) and strangely enough, the connecting pieces, by their buckling, twisting, and overlapping, show that the ends of the displaced portions are nearer to each other than originally. The western portion, in other words, not only moved northward for several feet, and dropped somewhat, but, in addition, was thrown over toward the east as it moved, thereby jamming in tightly all the soil that lay between. In no other way is this queer result to be accounted for.

North of the Spring Valley properties the fault continues, through an open country, to Mussel Rock.

Through this region it appears usually as a sharply defined belt of crisscross cracking in the soil, with narrower belts of the same sort a few yards away on each side. A slight dropping of the west side of the fault line is apparent, and the tilting and piling up of the turf along the line shows plainly the jamming together that accompanied the general movement.

Perhaps the most striking effect produced by the shock is that to be seen in the neighborhood of Mussel Rock. The rock itself is a slight promontory rising to a height of about a hundred feet and projecting a short distance beyond the general line of the beach, a few miles south of San Francisco. Just behind it the San Mateo hills end in a sandy bluff rising about five hundred feet above the beach and continuing some miles northward. The fault line extended to and beyond this bluff just north of Mussel Rock, and the bluff, like the last billiard ball in a row, received the whole force of the shock without having anything to which to transmit it. As a result, that part near the fault went to pieces completely. About a mile to the north of the real line of the fault the double-track roadbed of the Ocean Shore Railroad was being graded along the side of this bluff; the sand thrown down by the earthquake completely obliterated all that had been done, and left a monster steam shovel buried, upside down, a hundred feet down the slope.

This was trivial, however, as compared to the disturbance on the fault line itself. Here the whole side of the cliff for half a mile broke away with a crash, and slid down the slope and toward the sea.



Photos by Aitken

Effects of Shifting Along Fault Line

TREE ON FAULT LINE
HOUSE MOVED BY EARTHQUAKE

INVERNESS ROAD, OFFSET BY EARTHQUAKE

When it had stopped, the far-flying outer portions from the base of the cliff had formed a new promontory reaching well out in the ocean, and the upper part was some two hundred feet lower than before. Cracked and contorted it was, to be sure, but in the main the surface had ridden along undisturbed on the sliding sands below, and bore the same covering of underbrush as before. A cabbage patch at the top of the hill was cut in two by the slide; while part of it remained on the hilltop, another portion reposed unharmed some three hundred feet below and the remainder either hung on terraces near the top or was stretched out on the steep slope between. The ocean soon washed away the new promontory, as it was mainly soft sand; but back from the beach a little valley runs down to the sea where none existed before.

North of the entrance to San Francisco Bay is the Marin Peninsula, between the bay and the ocean, the Tamalpais ridge being its backbone. Between this ridge and the lowlying hills further west, there is a narrow valley, constituting an easy pass northward; it runs in the direction of the fault line, and in line with it. At its southern end Bolinas Bay runs into it; at the north Tomales Bay — both long narrow inlets having the same general direction. Plainly at some remote period there was a subsidence through here, just as in the San Andreas cañon.

The fault line appears at the head of the bay at Bolinas, and extends twenty miles over the rolling ground of the valley just mentioned to the head of Tomales Bay, where it disappears in the soft

tideflats. At the little town of Olema, a few miles south of Tomales Bay, a striking example of its action appears. On one of the farms there the fault line passes diagonally under a large barn and within a few feet of a house. About three-quarters of the barn was west of the fault; it moved as a whole more than sixteen feet without any injury except breaking the foundation joists under the other quarter. The house just beyond moved a like distance. Formerly three stately eucalyptus trees stood before the windows. They are now far to one side; as the fault passed between the house and the trees, the former shifted and the latter remained in their old position. The owner of the adjoining farm complains that the lane which ran past his barn down to his pasture has been moved, so that he has to go around the corner of the barn now to get to it, instead of straight ahead. The road to Inverness, passing over the marsh at the head of Tomales Bay, now shows a sharp reverse curve where formerly it was as straight as a string. It is offset twenty feet; this is the greatest amount of shifting anywhere on the fault line.

In this region the soil is a soft and deep alluvium, and the vibrations caused by the shock were very pronounced. The whole mass of soft earth trembled like jelly; when the shaking was over, the soil of the fields settled down in its old place (except along the fault line itself), but the stiff surface of the roads was in some places very badly cracked. A wagon bridge at Olema was laid flat; another, at Point Reyes Station (near the head of Tomales Bay), was arched several feet by the narrowing of

the creek it crossed. A train there was overturned just as it was about to pull out for San Francisco.

Beyond Tomales Bay the line of the fault passes under the ocean as far as Fort Ross, twenty-five miles above, where it reappears in a country of redwood forests. Through these it passes about forty miles to Point Arena, always in the same direct line. In the redwood forests we find the same manifestations of power as elsewhere; great trees, five and six feet in diameter, are thrown down, twisted about by the roots, or split open for as much as forty feet from the ground. At Point Arena the fault runs down through the sand to the beach and out into the ocean. How far northward it continues is not known, as its direction takes it farther and farther away from the coast, but serious damage to coast towns as far north as Eureka indicates that the fracture extends northward for many miles.

Apart from the actual shifting and displacement of the ground along the line of the fault, the greatest damage seems to have been done several



Photos by Weidner

Stanford Chapel and Arch

miles away from it. The houses on the Spring Valley properties were not seriously damaged by the shock; the Crystal Springs dam seems not to have been damaged at all. At Olema one house — a very old one — was thrown down, but others, including those nearest the fault line, were scarcely injured.

The zone of greatest disturbance on the fault line itself extended from Point Reyes, forty-five miles northwest of San Francisco, to Point Arena, fifty-five miles beyond. In Santa Rosa, twenty miles east of the fault, and directly east of this region, the damage was very severe. But two structures were left standing in the business section. In San Jose, fifty miles south of San Francisco, and twelve miles east of the fault, the shock brought down many of the most pretentious buildings; and Stanford University, seven miles from the fault, suffered severely. All these places were on the soft, sandy ground of the lowlands.

At Santa Rosa the destruction by the earthquake was almost complete; all the brick and stone buildings (except two) fell, and many of the frame structures did likewise. The tall dome of the Court

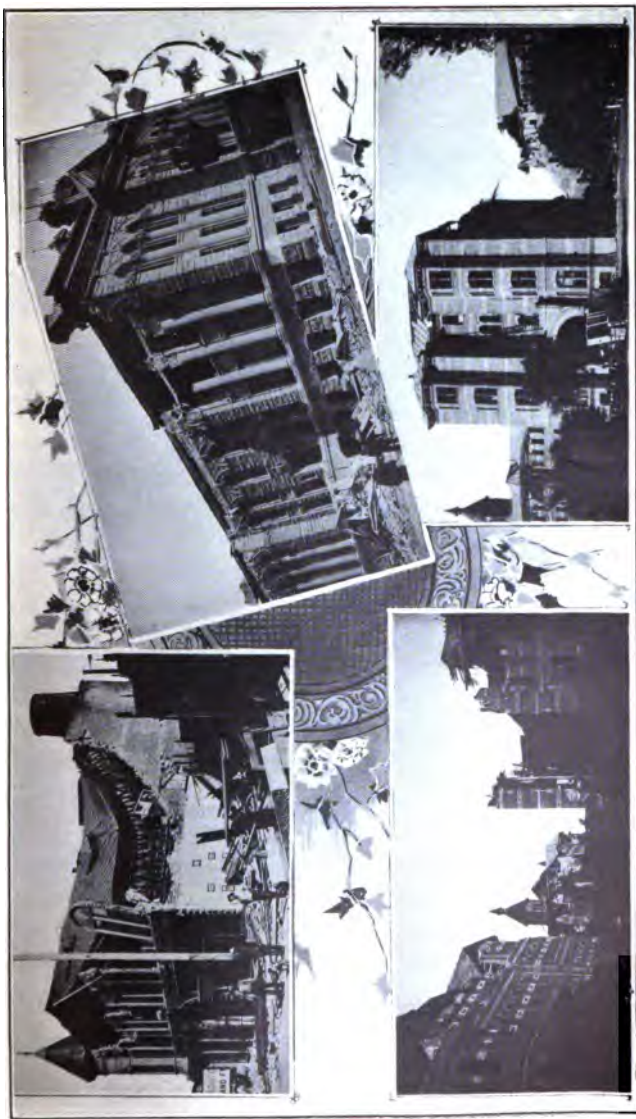


Photos by Weidner
Stanford Gymnasium and Library

House toppled over on the roof. The National Flour Mills, a long narrow brick building, was reduced to a pile of bricks, except at one end. The St. Rose Hotel, a four-story structure, collapsed in such a way that people walking about on its flat roof were scarcely above those in the street. To a great extent, probably, poor construction can be blamed for the damage suffered in Santa Rosa; particularly the use of mortar mixed with river sand and with lime instead of cement. Santa Rosa, like San Francisco, suffered a devastating fire after the earthquake; proportionately its loss of life and property were even heavier.

In San Jose the damage by the earthquake was not as general as at Santa Rosa, although a number of important buildings were severely damaged. In some places structures careened sidewise, and in others parts of brick and stone walls fell. The Hall of Records, a beautiful and impressive granite-walled structure, was bulged out on all sides so that the walls had to be rebuilt. At Agnews, a few miles from San Jose, a great deal of damage was done at the State Insane Asylum. The center part of the main building — a five-story brick structure of poor design and poorer construction — fell; a hundred of the attendants and patients were killed.

Serious damage was also done at Stanford University. The buildings were of a peculiar and very pleasing design, patterned somewhat after the style of the Missions. For the most part they were of one story, with a wide colonnade. The material in general was brick, with sandstone facing. Some of the buildings were of two and even three stories;



Photos by Derleth

Buildings at San José and at Agnews

there was a beautiful memorial chapel, with a tall spire, and also a splendid memorial arch, of rather top-heavy design. The arch was far from strong in construction, the upper portion consisting of a mere empty box, without cross walls, and almost without bracing. The earthquake threw down the heavy box at the top, and cracked the sides of the arch badly, splitting off one of the corners. The heavy spire of the chapel dropped through the roof; the elaborately ornamented gable ends fell out. The library and the gymnasium, newest of Stanford's buildings, became shapeless wrecks. The dainty arched gateways at the entrance of the Campus spread themselves out flat on the ground. The original buildings, erected in 1891, were practically unharmed — all but the museum, part of which was destroyed.

In Oakland, Alameda, and Berkeley, across the bay from San Francisco, the damage was comparatively slight. Some chimneys fell; some buildings in Oakland were damaged by the tumbling away of part of their walls; a church lost a large part of its box-like tower; a little theatre collapsed, killing five people; some old, ramshackle buildings telescoped. Here, again, it was the old story of decrepitude or poor construction.

Other cities equally near the fault line suffered very little. Petaluma and San Rafael, while much nearer the fault line than Santa Rosa, experienced a much less severe shaking. Santa Cruz, at the same distance from the line as Salinas, suffered very slight injury. It would seem that the comparative immunity of these cities was due to their being on



Photos by Derleth

Buildings at Santa Rosa and at Oakland

rocky ground, while the places more severely damaged were on the looser soil of the valleys.

(San Francisco was partly on sand and partly on rock; various degrees of damage resulted. Of itself the earthquake did not do much damage there; it was in its indirect results that it was so terrible. For it snapped every pipe bringing water into the city, and started fires everywhere.

IV

THE FIRST DAY OF THE FIRE

Even while the people were yet looking at the strangely swaying houses and the serene sky, it was discovered that fires were starting everywhere throughout the city. Every district, nearly every neighborhood, had its blaze—some of them caused by falling and uninsulated electric wires, others originating in broken flues, and stoves upset in restaurant and hotel kitchens and flimsy tenements. It is known that there were fifty-two "original" fires on that fatal morning. Probably there were many others that did not get into the records of the Fire Department.

Some were put out by the occupants of the houses where they occurred; others, finding things more to their liking, made a stubborn resistance, and were controlled only after a lively battle; many, too, getting a better start, growled and snarled like wolves uncaged, and were soon beyond the power of men to cope with.

At Twenty-second and Mission a fire started, and a quarter of a block was burned before it was controlled. Others occurred out in the "Western Addition"—at Hayes and Laguna streets, at Buchanan street and Golden Gate avenue, and on Polk street near Clay. Though in blocks solidly built up of wooden structures, they were confined to a few buildings.

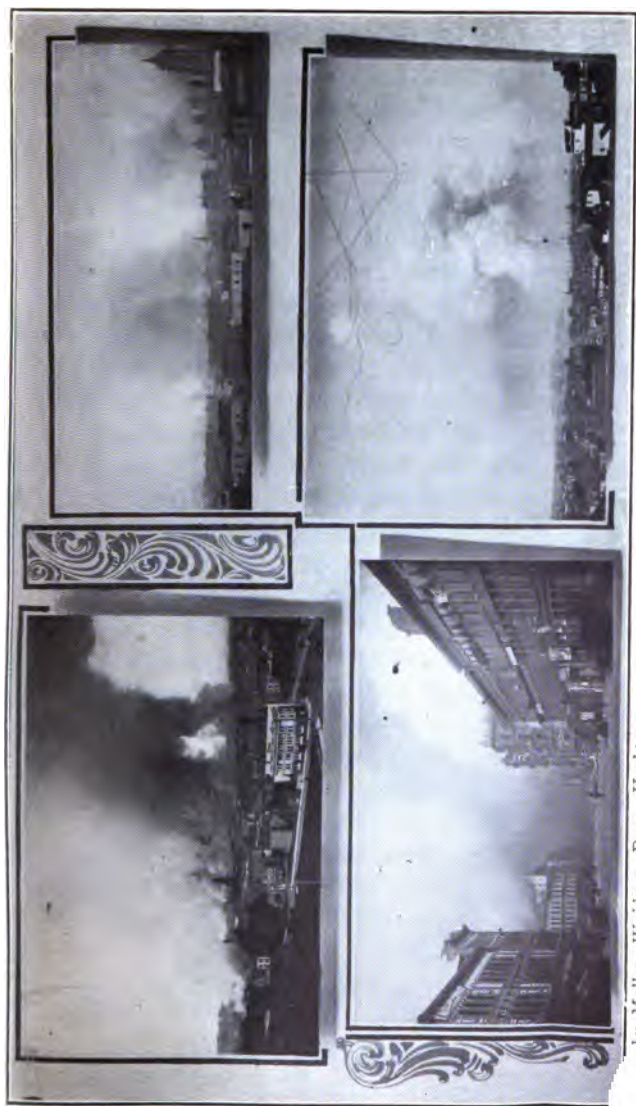
Many other fires were already raging down town in the wholesale district north of Market

street, and in the tenement and manufacturing districts to the south. There, where many fires raged among flimsy, tumble-down structures, the task was great.

The firemen were scattered by many alarms. From the first the streets resounded with the hurrying engines. Here an instant to subdue some flame almost at the moment of ignition; then, panting away in response to some other, perhaps more important, call. The department, on which the safety of the city depended, was no longer a concentrative force. (Those first alarms had cut it up into small squads, and scattered them along a great skirmish line. Some found the hydrants dry from the first; others for a time had water. Most of the latter were effectively fighting their separate fires; others were too few in numbers, too limited of apparatus, to do more than fight and fight, and hope for reinforcements. None of them were impotent, all had courage and grit and training; but their task was too great, their isolation from their brothers too complete.

And as they fought and fought, and hoped for reinforcements, the streams from the fire hose dwindled away. Puzzled, confused, the men stood helpless, with the nozzles empty in their hands. Then the truth dawned upon them that the mains had been broken by the earthquake, and that the supply of millions of gallons stored in the reservoirs was seeping itself away into the soil, useless in this hour of greatest need.

Serious as this loss of the water was, it was the breaking out of so many fires at once, and the



by Moller, Weidner, Dana, Hecht

Early Fires

absence of their chief, even more than the failing water, that made the task of the firemen so hopeless. From many places came the call for more men; and from the hearts of many men in anguish went forth the prayer for the chief to come—the chief they felt to be equal to the emergency.

Foreseeing such a conflagration as had just started, forethinking even of a water supply cut off, Chief Sullivan had been perfecting his plans through many years. In his own mind he knew what would be best to do. He had the confidence of his men. He could count on them to carry out unquestionably whatever heroic measures might be necessary. And now that the long-feared event had arrived, those men fought on and prayed for his coming, not knowing, then, that he was among the first victims of the temblor. (It is known, now, that all that were lacking were leadership, and discipline, and a plan of operation. Water there was in the bay, and equipment, and willing men; but these were as nothing in the unforeseen emergency without the chief. But he, hurrying to his wife's aid in headquarters, had been struck down by a wall from an adjoining building and received injuries from which he died, three days later, unconscious to the end of the fate that had overtaken his beloved city.

Throughout the city the firemen struggled to put out the many fires, any one of which might cause a conflagration. Those struggles, however, were only skirmishes; the real battle was beginning in the district south of Market street. There the dwellers in ramshackles were scarcely in the streets when fires sprang up all around them; there the tin-

der-heaped blocks spontaneously burst into flame in many places. In this district, as elsewhere, many detached fires were soon subdued; but others, either larger in themselves or occurring several to the block, had early grown into fires of threatening proportions. The firemen, willing, anxious, but badly scattered and soon deprived of water, were powerless.

In a perfect devil-dance of fury the flames leaped among the crowded houses already shaken into tinder piles. As far east as the water front, and west to Eighth street, (which faces the City Hall), every street had its fire. From Mission street south to Harrison, innumerable tongues of fire shot up — ever spreading, ever growing as they spread — licking up in an instant whole blocks in their course — darting down now this street, now that, to leave it bare of all its buildings — writhing in sinuous ecstasy — never stopping in that wild devastating dance.

Soon the whole district was a cauldron in which brick buildings with their steel and iron girders crumbled away, and machinery of a thousand sorts melted into a conglomerate mass of waste, and in whose fierce heat frame structures flashed into sudden nothingness. As the sightseers were on their way to the parks and hilltops to watch the progress of the flames, the many separate fires were eating their way rapidly toward each other; and each, like an octopus, was sending out horrid tentacles in all directions. Block after block went down; the firemen, always fighting, were driven steadily back, unable to make a lasting stand. Fire boats, tugs,

and other sea craft pumped water from the bay at an early hour; the firemen used water from cisterns, and from broken sewers and mains as long as it lasted; but still the flames spread, unrestrained, save for the temporary check of a street to cross, or a brick wall, or a pitifully insufficient water supply.

A case in point was on the water front. East street, south from Market, and a strip extending a block or two to the lower manufacturing district, was built up of tumble-down buildings — remnants of a past decade. Here were all the customary surroundings of the water front of any large sea port. Ship chandleries, "cheap John" clothing stores, sailor's hotels, restaurants, little corner groggeries, and various places of uncertain business, sprawled themselves in tottering structures for blocks around. When fires started very early Wednesday morning, these places burned with the quick fury of a crumpled paper in a stove. The manufacturing places just beyond soon caught from the fierce blaze thus started, and began a conflagration far beyond the power of the crippled department to control.

Another large fire was getting under way at the same time across Market street, among similar buildings. Another was further north, at East and Pacific, and another along Sansome near California. Through the wholesale district that lay between, these three gradually ate their way toward each other, and north toward Telegraph Hill.

Up Market street, through the wholesale district on one side, and the lower manufacturing district on the other, the fires traveled, their advance



Photos by Estey

Fire South of Market Street

growing slower as they reached brick buildings of a more solid sort. Wherever brick buildings stood side by side only one at a time burned. Each waited its turn, offering but a slight check to the onswEEP of the flames at the side walls, but soon igniting, and finally passing the fire on to the next in line. Some frame buildings were interspersed with the brick, and their burning was very rapid.

Gradually Market street west to Sansome became the point of juncture of two immense fires. Beyond, other great fires came down the south side of Market street to meet them. The Palace Hotel, world-famous, stood between.

Early in the morning a fire at the power station on Stevenson street, in the shadow of the Call Building, and but a short distance beyond the Palace, had eaten its way toward Fourth, then on either side to Mission and to Market, following the line of least resistance—the line of flimsy, wooden construction. As on the water-front, in fact as everywhere in the city where the fire found old wood awaiting it, these buildings on Stevenson and Fourth were the scene of a fierce, quick fire.

Here, also, as throughout the city during the days of its burning, these shacks acted as huge kindling piles for the better buildings around. The fire fought its way through to Mission street direct, and flames began to pour from the buildings there; from old St. Patrick's Church, and soon from the Grand Opera House, further down the street toward Third. The playhouse had long been a part of the city's tradition, and only a few hours before its walls had re-echoed the strains of "Carmen," at the open-



Photo by Hecht

The "Call" Building Burning

ing of the Metropolitan Grand Opera Company's season. It contained the company's wardrobes and stage settings — eight great carloads. It burned quickly from the moment of ignition. The fire-weakened walls crumbled; the roof fell in upon the smoldering embers; nothing was left but the tradition.

Slowly the fire traveled through to Market street, attacking the rear wall of a four-story stationery store opposite the end of Grant avenue. The store contained a large stock of artists' materials, stationery and printing papers, pictures, and mouldings — all highly inflammable material — and shortly flames were darting from every window. For a time the firemen had a stream of water, but it was woefully inadequate, and soon shrunk into a mere dribble. The building became a seething furnace, and in an incredibly short time was a smoldering ruin.

The flames approached the Third street corner. Their progress was marked by the slow ignition of the successive "fireproof" buildings en route. On the corner stood the Call Building, most famous of all the city's office buildings, and one of the best and most beautiful in the country. Covering a small ground space, but of extreme height, and with the elevators in the center, it made a splendid flue for the flames. Fanned by their own current, and drawn up by the fierce draft, they made quick headway, beginning at the third floor and spreading rapidly. The building throughout its entire eighteen stories was soon a shaft of fire.

It was a spectacle not soon to be forgotten. The soldiers had taken possession of Market street and had driven the crowds back. They gathered in Kearny and O'Farrell and other nearby streets, and looked, awe-struck, at the many windows belching flame, like so many blast furnaces. Up and down, and far out into the streets, and high in the air, the fire raged, a roaring, devastating, uncombatable force. Those who watched began to realize the magnitude of the conflagration; it had become something greater than they had supposed possible. With saddened hearts they thought of the price that was being paid for the magnificent display, and wondered how a fire they had at first thought would be put out in an hour or two had succeeded in reaching their cherished "Call." Gradually it had grown to be something demoniacal — a godless monster desecrating their temples. They resented the fire, madly, with hate.

At the same time fires were reaching Market street midway between Fourth and Fifth, and Fifth and Sixth, and Sixth and Seventh. One by one the great buildings fronting on the south side of Market went down. The morning began to wear away, and the crowds that thronged Nob Hill and other high places gradually realized that all the district south of Market was doomed. A pall of smoke hid the far-lying districts, but they knew that the fire was working its way there, too, and must eventually spread far out into the Mission.

Of what was actually taking place there behind the smoke they knew nothing. No regular papers were distributed that morning; no extras were is-

growing slower as they reached brick buildings of a more solid sort. Wherever brick buildings stood side by side only one at a time burned. Each waited its turn, offering but a slight check to the onswEEP of the flames at the side walls, but soon igniting, and finally passing the fire on to the next in line. Some frame buildings were interspersed with the brick, and their burning was very rapid.

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Photo by Herlt

The "Call" Building Burning

there, and the slow spread of the flames seemed to presage success.

At about ten o'clock the word was passed among the watchers on the hills that a fire had started in Hayes Valley, and it needed but the rising columns of smoke from the neighborhood of Gough and Hayes streets to confirm the rumor. Of the origin of this fire, it is claimed that a woman, after satisfying her curiosity for a time, went into her house to breakfast on ham and eggs. The chimney was broken, the house took fire, and to the conflagration working elsewhere throughout the city was added another great fire. This manner of accounting for it is so plausible that the conflagration it started became generally known as the "ham and egg fire."

Finding block after block of frame buildings in its path and with a brisk breeze blowing behind it, the fire burned rapidly in the direction of the City Hall, turning aside for a while to leap the space of a whole block to the lofty spires of St. Ignatius Church and College on Van Ness avenue. This was an institution that had cost nine hundred thousand dollars to build, and, with its magnificent organ and mural paintings of the finest, was reputed to be the grandest Jesuitical church in the world. The building, with the organ, the mural paintings, and all the invaluable emblems it contained, were destroyed. Only gaping, unroofed walls were left. A few minutes before there had been no fire within several blocks. There was no warning, no opportunity to save any of the precious contents.

With equal suddenness flying brands reached the huge Mechanics' Pavilion on Larkin street, between Hayes and Grove,—a great barn of a place which had, earlier in the day, been converted into an emergency hospital. Quickly the injured and the dying were moved, in such conveyances as came to hand, and the building was abandoned.

Built all of wood, and hardly more than a shell at best, the Pavilion burned fiercely, and communicated the flames to the City Hall, already wrecked by the earthquake. In the yawning cavities left by the fallen walls the fire found a means of easy entrance. On the top floor at the southeast corner—nearest point to the Pavilion—was the Law Library; and here the fire caught. It spread from chamber to chamber, each burning fiercely in its turn, but each, too, igniting slowly through the thick partitions. The building burned for three days, just as a mine burns—without hurrying to get through. But when the work was done it was complete. Not a paper, save those few in the vaults, not a book in the Public Library or the Law Library, scarcely a document in the offices of the County Clerk, the Recorder, the Assessor, and the other officials was left to tell the story of the City and County of San Francisco for forty odd years.

By late afternoon the Hayes Valley fire had made its way down to Market street without spreading dangerously either northward or westward, and seemed about to burn itself out. Across Market street to the south, nothing remained; from beyond the City Hall clear to the bay, everything had been consumed.

Almost the last to go of the buildings fronting the south line of Market was the far-famed Palace Hotel. Threatened by neighboring fires from the very first, its roof tanks and the untiring work of its employees had saved it, though at times it was actually ablaze. But at last the water was exhausted and nothing remained but to leave the structure to its fate. With its flag flying as proudly as ever, the famous pile awaited the inevitable. Soon flames fastened themselves upon it; gradually they spread from room to room and from floor to floor, working their way slowly downward from the roof. The interior, with its rich furnishings, became a seething furnace that burned till late in the afternoon; finally there remained only the massive brick walls, standing as staunch as ever, undamaged by either the earthquake or the fire. Ablaze it was magnificent; burned, it became a majestic ruin, with a dignity and beauty all its own.

With the Palace went much of old San Francisco. Wherever the city was known, the name



Photo by Estey

Market Street Fire Seen from Nob Hill

Palace Hotel was familiar. It was one of the most famous hotels in the world. Its register was an enumeration of the notables who had visited the city, and its hospitality was a pleasant memory to thousands of people in all parts of the world.

Even as the Palace, and its annex, the Grand, were burning, the fire that had started from the water front reached them, and the destruction of the south side of Market street, and of the district beyond, was complete. West of the Palace naught but swaying walls remained where great retail establishments had been; while southward from them



Photo by Hecht

Market Street East from Jones

stretched a smoking prairie with here and there a tall chimney to mark where some house had stood. Eastward, from the Palace to the ferry, the fire had passed through half a mile of well-built brick and iron structures — wholesale houses and factories — and had left nothing but charred ruins.

In the wholesale district to the north of Market the fire had made slow progress.

All morning it had been held east of Sansome Street. Most of the buildings were brick, some were stone, some even had steel frames, and all offered the customary check at the side walls. A few wooden structures here and there made hot, quick fires, but the general progress of the conflagration was slow — very slow. All day a stubborn fight had been waged against it, with a scant supply of water from the sewers and the bay. Explosives had been used persistently to raze threatened buildings in the path of the flames. Through the afternoon the firemen prayed in vain for the usual west wind to come, and drive the flames back to the bay; but only mocking breezes broke the strange calm.

Again and again it seemed that the fire here was subdued; but each time, when its advance was checked in one direction, it spread in another, ever breaking away from the firefighters at some new point. Slowly, but none the less certainly, it advanced upon the base of Telegraph Hill first, then toward the financial district of Montgomery street, and the retail district of Kearny. All afternoon the burning of a new eight-story warehouse full of paper, at Sansome and Clay Streets, afforded a brilliant spectacle to those on the hills, and by its

intense heat sufficed to spread the fire among the little fruit markets and print shops nearby. For the first time it worked west of Sansome street. A desperate stand was made to prevent it from reaching the slender eight-story Pacific Mutual Building at Montgomery and Sacramento,—the city's first building of any height. But despite all endeavors the flames at length attacked it from the building adjoining and that at the rear, and from the Italian-American Bank Building across Sacramento street. Even then it seemed that the fire would be checked. To the south, fronting California street, were the splendid eleven-story steel and stone Kohl Building, the Mercantile Trust Company's smaller structure of massive granite, and the excavation for the new building of the Bank of California; eastward, all had been burned already.

But here, too, the hope of victory failed; here, too, the fire turned aside when it seemed cornered — leaving the Kohl Building almost undamaged. As



Photo by Estey

Wholesale District Fires Seen from Nob Hill

It worked down toward California street, a charge of dynamite, intended to clear away a nearby small building, scattered burning brands across Montgomery street, and set fire to the block running through to Kearny. Quickly it crossed from Kearny to the little arm of Chinatown that reached down the hill beside Portsmouth Square.

And beyond Chinatown, with its huddled houses and narrow passages and overhanging porches, lay long miles of close-built wooden dwellings — all the unburned part of the city save that other residence district far to the south, through which the Mission fire was eating its way, as yet unchecked. Between, the fire from Hayes Valley was still advancing along the north side of Market street and through the upper retail district. Everywhere the fires spread, relentless, all-powerful, overcoming the most heroic efforts to stay their course.

So the day wore away, and with nightfall the conflagration came to spell Doom to the watchers on the hills; one by one, landmarks were going — a cloud of smoke here, elsewhere a tongue of flame, told the story of the passing of some familiar haunt. At first they had been merely curious watchers, but gradually a feeling of sorrow, of regret, of love, crept upon them. As time went on and the conflagration spread over larger areas, there came a tense wondering if it would all stop while there was something, if only a little, left — something of that beloved city in which they all had a share. In full view of its helpless people, San Francisco was being devoured by a monster which they were powerless

to subdue and the extent of whose appetite they could only guess.

For a time the flames had seemed to be lessening, and under control; many were deceived, and ate what little supper they could prepare, in the fond hope that the fire would be subdued during the night.

Perhaps this confidence was shared by those weary soldiers who, after their hard day's work, sat down to rest and refresh themselves at the ruined and abandoned Delmonico's restaurant on O'Farrell street near Stockton. Perhaps they were a little careless or even reckless; perhaps only a perverse fate can be blamed. In some way the building caught from the camp-fire which they had started, and another conflagration, entirely independent of the others, began. Delmonico's was in a fine four-story brick-wall structure; on one side was the Alcazar Theatre, in a similar building, and on the other a three-story lodging house of wood. Behind

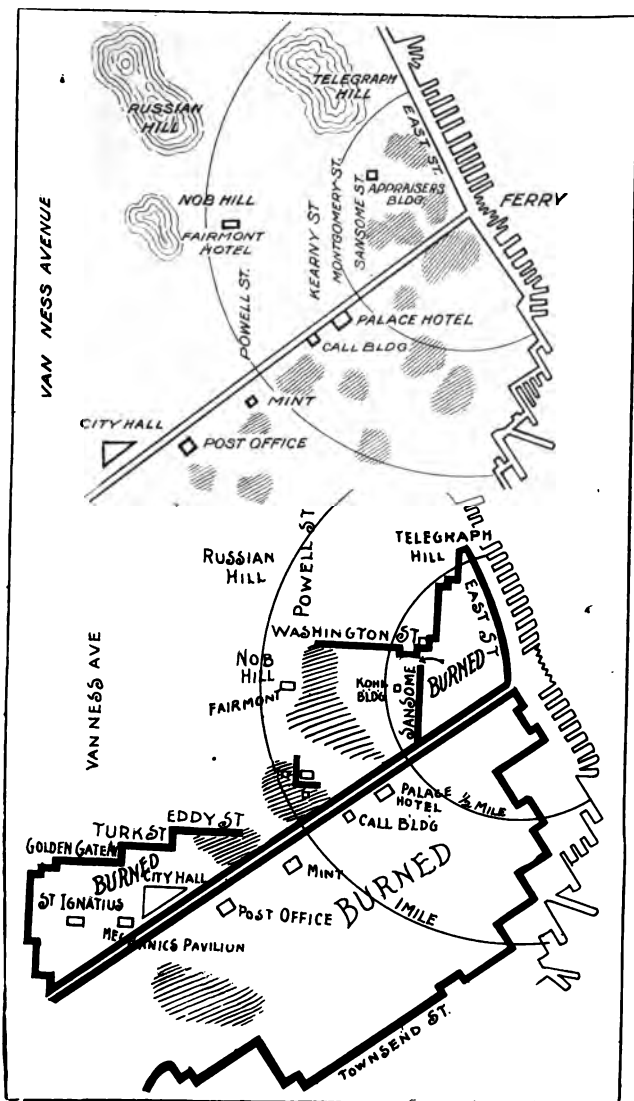


Photo by Muller

Hayes Valley Fires Seen from Sixteenth Street Hill

it, running through from Geary street, were two large six-story retail furniture stores, each containing a great stock of the most inflammable material. From the start the new fire was ungovernable; seizing on the great stock of furniture, and on the Alcazar and Fisher's Theatres, and the Orpheum, across O'Farrell street, it soon became a roaring conflagration, which raged for hours, spreading slowly through the brick buildings, or licking up the wooden ones in a breath — always relentless, always beyond the possibility of control.

During the evening, too, the fire from the wholesale district, having thrust out an arm into Chinatown, stretched another down along Montgomery and Kearny to Market, and advanced westward along all the cross streets, through the city's retail districts. By midnight a solid wall of fire, stretching from Market street to Chinatown, was working steadily out toward Powell street and Nob Hill. Here again it seemed as if a stand would be made — a last endeavor to stay the advance of the flames. At Powell street, Union Square afforded an open space for a block's width, between Geary and Post. Half a block above was a large empty lot where a new building was soon to be erected. Further up the hill, the block between Pine and California was unbuilt, save for the Stanford home, set in the midst of an ample lawn, nearly two hundred feet from the houses across the street; and all the next block was occupied by the wide terrace in front of the Fairmont. Only in the two blocks from Sutter to Pine could the fire cross Powell street — there and in the blocks below Geary, near Delmonico's. It



Upper Map Shows Start of the Fires
 Lower Map Shows Fires at 3 A. M., Second Day

seemed that perhaps the fires could be cut apart by these open spaces and so subdued. Across Powell street the close-built wooden houses stretched all the way to Van Ness avenue and beyond through the Western Addition.

At about one o'clock the top of the slender spire of a church on Powell above Bush caught from the flying embers. Soon an engine was throwing a small stream upon it, for at this point also there was a small supply of water. Gradually the flames spread, in spite of the water; soon the roof ignited; soon after the interior. The whole structure blazed fiercely; a row of flats just below began to burn. Wearied, haggard, hardly able to hold the hose after their eighteen-hour struggle, the firemen scarcely knew where to direct the little stream, in the almost helpless contest. Already the fire from down town had worked half way through from the far end of the block; a score of such streams would scarcely have been enough to turn back the flames from the little corner grocery and laundry on which they directed their scant supply. And even as they stood there in the center of Powell street the fire reached over their heads from the blazing church and fastened upon the cornice of a tall apartment house on the west side of the street, thus passing the only place at which it seemed possible to stop its career.

In the meantime the fire from Delmonico's had crossed Powell street and was threatening the St. Francis Hotel, across the width of Geary street. For a long time the building held out, and seemed safe; but shortly after two o'clock heavy smoke be-

gan to roll up from the interior and flames began to play along the roof. Doubtless a little water could have saved it; as it was, the burning of a mere three-story wooden building across the street proved sufficient to ignite it. Soon flames burst from every window; by morning only the walls and the floors — incombustible stone and tile — remained. Once ablaze, the St. Francis was a great torch from which the apartment and residence district took fire. Already down-town San Francisco had all been consumed, except one alone of its great buildings.

At the corner of Powell and Market, running through to Ellis, stood the James Flood Building, just a year old. Twelve stories in height and of monumental proportions, it was San Francisco's mightiest office structure — greatest in size, most massive in design.

During the morning it had stood unscathed, while across Market street the great Parrott Building, with the Emporium's tremendous stock, had been consumed. At night the long row of buildings adjoining it on its eastern side, and those facing it on Ellis street, had burned; but it had still survived. Later, all Powell street from Eddy to Ellis burst into flames, and in the end fires burned on three sides of it at once. Still it stood, an island in a sea of fire, the fierce waves of flame beating in on it from all sides. Finally, in the early morning — about half past four — the intense heat of the upper air ignited its eighth floor. With the Flood Building went the last of San Francisco's business section. The conquest was complete.

A line of fire, greedy, relentless, ever hurrying on, stretched from Market street to Nob Hill, and across the Mission district, traveling slowly, irresistibly westward through the city. And to the westward stretched an unbroken line of residences, wooden, close-huddled — all that remained of San Francisco.

V

THE FATEFUL DAY

Many there were who awoke that morning to a stern realization of duty to be performed. From the first the day was recognized as one of disorganization and strange responsibilities.

Mayor Schmitz hastened to the City Hall only to find it a labyrinth of fallen walls. The Hall of Justice (damaged but still tenantable) on Kearny street opposite Portsmouth Square, was selected for headquarters. The heads of the Police Department were already there, and an early rollcall showed that the entire force of six hundred men was intact and available. Soon the men were being told off in various emergency details.

With quick intuition of the dread possibilities from excessive drinking on such a day of excitement and danger, when the police would all be needed for special work, an order was made at once compelling the saloons to close, and officers were dispatched through the city to put it into effect.

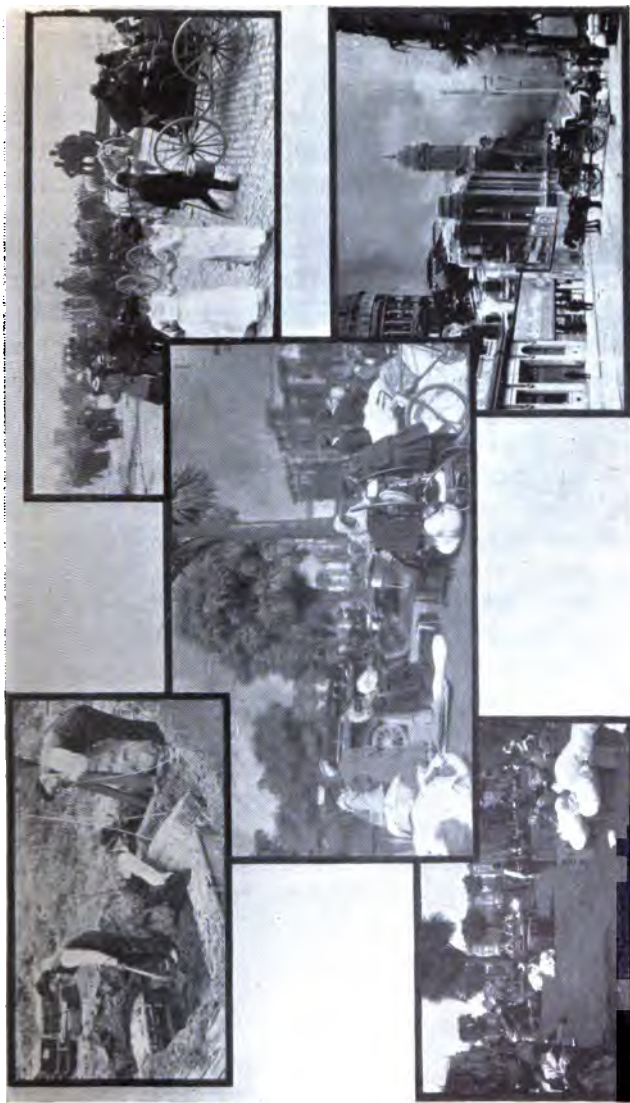
A few willing workers had gathered around the Mayor, but others were needed. A list of names of men high in civic affairs and deep in the confidence of the people was made up. Messengers were sent to bring them together. Street cars and telephones were alike unavailable; "public utilities" had become in an instant a thing of yesterday. Dispatch ~~bearers hurried about on foot~~, on horseback, in automobiles. Many of the latter were soon impressed

into the city's service, and went scurrying through the streets on a thousand missions.

Fifty men formed the coterie of assistants to the Mayor, and with former Mayor James D. Phelan as chairman, constituted an advisory board called the Committee of Safety. At once the Committee planned and worked for the help of the needy, the suppression of the criminal. As the situation grew more grave, new tasks became apparent, and new responsibilities had to be assumed. Soon it became an emergency government. Ignorant as they of course were of when the end would come or what it would be, these men undertook to work out the city's salvation among themselves. There is no other case in history where a stricken city held continuous control of its own affairs.

The care of the injured had to be provided for — the country at large appealed to — fire lines established; later the hungry would have to be fed — the homeless housed — the half-dressed clothed; and all the time the machinery of government must be kept moving; organization must be brought out of that first chaos, and life made livable, among 200,000 helpless people, in a city deprived at a stroke of cars, telephones, light, power, (all the tools and conveniences on which it had come to rely), and of food and water as well — the very means of existence.

Apart from the ever-present need of fighting the fire, the first thought was for the injured. Temporary hospitals were established in many quarters. All the private sanitariums opened their doors. From the first doctors and surgeons and nurses



Photos by Waters, Muller, Estey

Scenes During the Fire

were racing about the streets in automobiles, binding wounds, dressing burns, and here and there pronouncing the dread verdict to those who sat by.

The Harbor Emergency Hospital on the waterfront (long a factor in the city's care of the victims of accidents and broils) was filled from the first. The injured and sick and dying were taken there in large numbers from the charnel-house south of Market. While the fire was burning hottest all around, the attendants worked away, unmindful of the danger. Ambulances and patrol wagons hurried the patients to the hospital, while others waited to remove them should it become necessary.

Patients in the Receiving Hospital in the ruined City Hall — miraculously uninjured themselves — were quickly taken to the Mechanics' Pavilion, which was at once converted into a hospital. Here, too, were brought scores of those who had been injured. Autos tore madly along Market street piled high with cots and mattresses, and bringing precious supplies. Volunteer physicians worked all morning. While the offices of many, containing libraries and kits of instruments of priceless worth to them, were burning, they remained with those who needed their help. When the Pavilion was abandoned, they joined in the exodus to the other hospitals and to the Presidio, where a field hospital had been established, giving freely of their knowledge and experience when there was nothing else left for them to offer.

Many people came to the hospitals to seek lost relatives. The cheery note of welcome and courage rose here and there where the search ended happily.

Repressed sobs, the deep intake of fear-sprung breath, told the story of others who went from cot to cot without success.

Ministers of many denominations busied themselves with the spiritual needs of the dying. Priests of the Roman Catholic Church administered the last sacrament to such of the dying as were of that faith.

Many, crushed by falling brick and timbers, died during the morning, in spite of all that could be done for them. Many others had been killed outright or died before they could be extricated from the wreckage. A temporary morgue was established in Portsmouth Square. As the fire came near, some distinguishing mark was noted for the subsequent identification of the dead, and a general burial was made, hastily, in shallow graves—a grim Potter's Field of the calamity.

To assist the Mayor came also the troops. Brigadier-General Frederick Funston, temporarily in command of the Department of the Pacific, was quick to see the magnitude of the emergency, and ordered out his men. Within two hours after the earthquake fifteen hundred men were marching cityward from the Presidio to place themselves under the orders of the Mayor.

When the troops appeared on the streets the impression went out that the city had been placed under martial law. No more erroneous report of affairs gained a general credence than this; but its denial has had such publicity as to require only a brief repetition here. The army, and later the navy, the National Guard, and the cadets from the State University, throughout the entire time of their ser-

vice in the city, were affiliating forces only, subject to orders from the Mayor. Never did the city pass out of the hands of the municipal authorities.

General Funston, a man of action, first put his troops in the field, and afterward reported what he had done to the Department of War at Washington, asking Secretary Taft for the proper authorization. The closing sentence of one of his messages is unique. It reads: "I shall expect to receive the necessary authority."

Soon the soldiers had separated into many detachments and gone off on a thousand duties,—some to form an impassable cordon along the fire line, some to fight hand to hand with the flames beside the firemen, some to rescue and care for the injured and bury the dead, all with strict orders to enforce order at any price and to shoot looters at sight. They helped to shut up the saloons of recalcitrant liquor dealers, and poured their stock into the street. They arbitrarily reduced the price of goods where merchants had made advances. They opened some stores and confiscated the goods. They helped some tradesmen who were distributing food to the hungry without price, and assisted other dealers to keep in check the anxious buyers who feared a famine and tried to stock their larders sufficiently to meet it. They policed the streets and guarded the houses. Perhaps they were sometimes domineering, even harsh, where they should have shown the greatest patience and lenity; but in the main they deported themselves with admirable restraint.

Newspaper men were among the first in evidence. They saw great "scoops" in what was going on. They must get out some "extras" right away. There was small thought of printing facilities. Surely some type-setting machine and press could be found in the city when it came time to use them. Reporters hurried from one stirring scene to another and wrote great copy. When the hope of their extras was shattered by the discovery that no large press was to be had, a few went to Berkeley and issued a combination paper, under the title, "Call-Chronicle-Examiner." The paper told what the men who made it knew about the earthquake and fire, and what they heard was happening elsewhere. The proprietors of the papers knew nothing of the undertaking. There was too much news going to waste to bother about authorization.



Photo by Estey

Mechanics' Pavilion

The operators of the great telegraph companies stayed at their instruments all day. While anxious thousands all over the country watched the bulletins, these men remained at their keyboards, ticking off the story of the catastrophe with quiet heroism.

For most people the day was one of waiting and watching only, but to some it was a time of exceptional bustle. Wagons and push carts, backed up to the curb in the threatened districts, were being filled with business records to be taken to places of safety. Expressmen made from twenty to fifty dollars a load. Those automobiles still in the hands of their owners hurried along on various strange duties. Photographers were snapping their cameras everywhere. Bank clerks busied themselves stocking the vaults with their bank records and papers, and the valuables of many merchants.

Down town, the busy and the curious were alike gradually driven back by the fire or the soldiery. Through the day the line of guards continually reformed and shifted, stretching itself to surround new blocks within the doomed circle. Within, squads of dynamiters began to appear. Everywhere they hurried; charges were set; the men scurried away, and with a roar and a cloud of dust a building would fall. Unfortunately many charges were set by unskilled hands, and the fire was scattered. At this time, too, most of the "dynamiting" was being done with ordinary black powder, the only explosive available; often it set fire to the ruins it had made, or hurled burning brands in all directions. / During the morning the razing of buildings, with but few exceptions, was confined to the neighbor-

hood of Washington and Jackson, Sansome, Battery, and Front streets, with a few explosions in upper Montgomery street. A notable exception was the early attempt to blow up the uncompleted Monadnock Building on Market street just across a small alley from the Palace Hotel. This attempt failed, as did also another made in the afternoon, at the time the Palace was burning.

One place where the dynamiting of nearby buildings helped in a successful fight with the flames was at the Appraisers' Building, on Battery street, between Washington and Jackson, where the struggle began early in the day.

General John T. Dare, the appraiser, had reached the building at about eight o'clock, and watched the fire approach from the rear on Washington street. He realized that the building must inevitably ignite unless stringent means were adopted to save it, and gathering his few men together, distributed among them buckets and pans—anything that would hold water. Then he stationed them at the windows. On the top of the building was a tank containing five thousand gallons of water. From this they drew their supply, and all day long while the fire raged around them, and while Washington street was being dynamited, they, and the soldiers who had come to help them, drenched the hot embers as they fell, and wet down the window sills and casings when they began to smoke—dealing out the precious water sparingly, almost grudgingly, but well. The building was saved.

At the same time a similar struggle was going on at the Mint, far away to the southwest. Here there was water, but the machinery that pumped it from an artesian well had been broken by the earthquake. The building was of heavy stonework, with iron shutters; the chief menace was in its tarred roof. Everything that could be drawn to the edge was thrown into the courtyard, and while the pumping engine was being repaired, mops to fight the fire with were wet in the vitriol tubs. Assailed on two sides at close range, and on the other two at the width only of the streets, across which were tall wooden buildings, the Mint, with its treasure-store of two hundred millions, was the scene of one of the hardest and best-fought battles of the conflagration. It lasted seven hours. Here, too, soldiers had come to help. In the end the building was saved un-



Appraisers' Building

Photo by Hecht

harmred, except where the fierce heat had scaled off part of the stone of the walls.

At the Post-office — which was almost isolated and had only flimsy shacks for neighbors — the danger was less. Once, however, the fire entered one corner of the building, and the clerks who were there turned aside from their work to subdue it and save the structure.

Down on the water-front the Harbor Commission was at work saving the wharves. The fire boats Active and Leslie, with several thousand feet of hose, had come down from the Navy Yard at Vallejo, and were pouring salt water on the flames as fast as their engines could pump it up. From the Howard street wharf five hose lines were carried far along the front of the fire. Marines had arrived from Goat Island, and were hard at work wherever there was fighting to be done. Fire engines were stationed along the eastern side of East street (the other side was too hot for them) and were wetting down the wharf buildings and ferry houses. A boat made frequent trips to Goat Island for fresh water for the boilers. This fight at the water-front was the first made where water in sufficient quantities was obtainable, and it was the first place where the fire was beaten back from inflammable material. Excepting a few small buildings, East street, south from Market, was saved.

The wharfage was in danger almost continually during the fire, but water and heroism saved it intact. At one time a line five thousand feet long was carried from the fire boats up the side of Tele-

graph Hill; but it had to be abandoned there later, and a thousand feet of hose was lost.

The fire south of Market traveled fast toward the Mission district far to the southwest. Except in the manufacturing district near the bay, there was little to stop it. The buildings were mostly frame affairs and none too well put up. Many had been shaken down or badly shattered by the earthquake. The flames rose higher and higher and wove themselves into a leaden pall of smoke that hid the sun, as they went on their uncheckable course.

At the Southern Pacific depot and freight sheds (Third and Townsend streets) were three men watching and waiting, armed only with a puny gar-



Photos by Derleth and Estey
The Mint and the Post-Office

den hose. Men would laugh in calmer moments at the antics those men went through. The fire came. They fought it as best they could, dragging their little toy hose around, and turning loose a few drops where the roof was catching or a door began to smoke, and giving up as much as a bucketful to a red tongue that shot out at them from some blank wall. Here they were at the front—there at the back—around the sides—on the roof—everywhere that they and their hose were needed—anywhere that there might be danger. The kind of work that makes men mad raving maniacs forever—or deities for a spell. The fire around gave it up at last, and away they went to see if they could do something to help elsewhere.

Such episodes, however, were all too few. In general the fire's course was unchecked and irresistible, and those whose possessions were threatened could only await the inevitable. As the day advanced it became more and more evident that no one could foretell what the end would be. The need of more stringent measures for the protection of life and property also became evident as the day passed.

Lawless elements were beginning a carnival of crime. There was some looting. It was reported that there had been murder. Special policemen were sworn in; soon a thousand men wore special stars. A proclamation drafted by a member of the Committee of Safety was signed by the Mayor and ordered to print. It was sent to a printing plant at Twenty-second and Mission where it was soon in the forms ready to be run off; but there was no power. Soldiers, stationed at the door, impressed

passing citizens in relays to work the press until five thousand copies had been run off.

It was posted everywhere and warned people that the troops and the police (regulars and specials) had full authority to KILL anyone found looting, or committing any other crime. Citizens were asked to stay at home during the hours of darkness, and were warned of the danger of fires from broken chimneys.

It was sought to lessen in this way the possibilities of new fires in the residence districts and to suppress all forms of vice and crime. The proclamation was wholly without legal basis—in a way the assumption of a dictatorship. But the iron note of necessity rung through it, and few dared to violate a mandate so sweeping and yet so reasonable.

In one respect, though, the proclamation was but a grim mockery—in its admonition to the people to stay at home at night, when thousands upon thousands of them had no homes left, and of the others none knew when his home, too, would go. All day pitiful groups of them had fled from the burning districts, abandoning their homes to the flames.

The whole district south of Market was a desolate field of dying embers. The people from there had early formed a weary army that had trudged through many streets to the Presidio or Golden Gate Park or the beach, or the San Bruno hills. From the first they had poured out from the burning region that had been their home.

Later, when the Hayes Valley fire started on its ruthless course, the people there took refuge in

The Call-Chronicle-Examiner

SAN FRANCISCO, THURSDAY APRIL 10, 1906.

EARTHQUAKE AND FIRE: SAN FRANCISCO IN RUINS

DEATH AND DESTRUCTION HAVE BEEN THE FATE OF SAN FRANCISCO. TRAGEDY AT A TANGIBLE AT A GLANCE. THE GREAT EARTHQUAKE OF APRIL 18, 1906, AND THE FOLLOWING FIRE HAVE PLACED THE CITY IN A STATE OF RUIN. THE FIRE HAS BEEN THE MOST DEVASTATING SINCE THE GREAT FIRE OF 1849. THE FIRE HAS BEEN THE MOST DEVASTATING SINCE THE GREAT FIRE OF 1849. THE FIRE HAS BEEN THE MOST DEVASTATING SINCE THE GREAT FIRE OF 1849.

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NO HOPE LEFT FOR SAFETY OF ANY BUILDINGS **BLOW BUILDINGS UP TO CHECK FLAMES** **WHOLE CITY CHURCH OF SAINT IGNATIUS IS ABLAZE** **MAYOR CONFERS WITH MILITARY AND CITIZENS**

ENTIRE CITY OF SAN FRANCISCO IN DANGER OF BEING ANNIHILATED

Big Business Buildings Already Consumed by Fire and Dynamite---30,000 Smaller Structures Swopt Out and Remainder Are Doomed

AT PANIC-STRICKEN PEOPLE FLEE

BIG FIRE IN MISSION EMPORIUM FATEFUL BUILDING THEATERS RUINED

Jefferson Square. They rasped trunks over the sidewalks, set up shelters as best they could, tacked cards upon their "stuff" that it belonged to so-and-so, and then went back to see the fire as it neared their homes.

In the early evening when the fire suddenly came upon the hotel and apartment house district adjacent to Union Square, another hurried exodus began. One block and then another was abandoned.

Before the night was far advanced Chinatown, too, was in the grasp of the destroying flames, and the Chinese joined the throng.

It was a motley procession, sprung from many places, its ranks ever filling with homeless, foot-sore legions—orderly, and nearly silent.

Out Sutter, Bush, and Pine streets, densely built up with apartments, hotels, flats, and office suites, the flames advanced, and the residents there were forced to flee. All day they had harbored no idea that the fire would ever reach them. Even then, with the flames only a block off, they did not realize that their block, too, was doomed. They waited with unreasoning confidence that in some way (they knew not how) and by some hand (caring little whose) the tide of destruction would be turned back. They made no preparation for flight; not until the flames were almost upon them did they leave. Then, burdened down, they took up their retreat from the monster that was laying desolate their fair land of promise.

Quickly-filled trunks grated up the hills. Wagons, most of them pulled by men, rattled over the rough cobbles. Baby carriages and toy express

PROCLAMATION

BY THE MAYOR

The Federal Troops, the members of the Regular Police Force, and all Special Police Officers have been authorized to KILL any and all persons found engaged in looting or in the commission of any other crime.

I have directed all the Gas and Electric Lighting Companies not to turn on Gas or Electricity until I order them to do so; you may therefor expect the city to remain in darkness for an indefinite time.

I request all citizens to remain at home from darkness until daylight of every night until order is restored.

I Warn all citizens of the danger of fire from damaged or destroyed chimneys, broken or leaking gas pipes or fixtures or any like cause.

E. E. SCHMITZ, Mayor.

Dated, April 18, 1906.

ALTVATER PRINT  MISSION AND 22ND STS.

The Famous Proclamation

wagons rolled along packed full with the "things" the fear-seized people had snatched up in their flight. Pianos were bumped along the sidewalk—some went to pieces in the process. Sewing machines slipped along on their rollers with stacks of bedding and the like lashed to them. Women hid their valuables upon their persons, or carried trinkets Gipsy-wise in handkerchiefs. Men wore columns of hats five high. Some carried only a book. Parrots jabbered and scolded from many cages. Some people had blankets. Girls usually had band boxes. Boys stretched poles between them, and carried, suspended there, bundles of clothing and provisions. Once it was only a ham.

A few had the courage to smile. Friends met and made a pitiful show of cheerfulness. Perhaps they prayed, but it was without show. None cursed. It was too desperate a time for visible emotion.

Many people sat down to rest, and such a state of exhaustion had come that they slept,—a doorstep or a cartrack or a curb for their pillow. Indomitable, others continued the pathetic march.

To these outcasts of the flames the night was unending. Those that had not already lain down in the streets to rest made quick camps in the parks and open lots. Jefferson Square was thick with people who stretched blankets or rugs or overcoats over bed slats or between trees (anything to have a roof over their heads) and tried to call it home. Some slept. The lawns were hidden beneath the close-lying ranks of exhausted people.

Many women sat alone, guarding the little hoard of rescued chattels, while their menfolk went

from camp to camp in a vain search for their children; for families had been separated and loved ones lost in the migration. In fitful dreams babies cried out, and their mothers whispered bravely that it was all right. Under a tree in Golden Gate Park a child was born.

Over all hung a cloud, impenetrable, gold-fringed with a dancing lace of flame that careened and folded and flared deep cardinal against the smoke above.

VI

THE CONQUEST

The second day of the conflagration stole upon the city. The red glare paled slowly and grew yellow. Spectral flames of limpid ghastliness shot up in endless array from the fire zone. Overhead still hung the heavy smoke-cloud, lowering, sullen.

All night the sweep of the fire had been widening. Everywhere the flames were spreading, resistless, all-powerful. Two immense conflagrations, either of which was great enough to destroy a city, were sweeping down, the one upon the Mission district, the other upon Van Ness avenue and the Western Addition. Chinatown, the St. Francis, the James Flood Building, block after block of retail business houses, hotels, and homes, had been the sacrifice of the night.

Dawn brought no abatement. Ten blocks across, the fire roared down upon the Western Addition. Powell street, where it had been earlier thought the fire could be stopped, had been added to the long list of important streets devastated by the flames. It was recognized that nothing could be done to stem that awful tide until it reached Van Ness avenue, which because of its great width would make a final stand possible. Come what might, and whatever the cost, every effort must lend itself to make Van Ness avenue the ultimate boundary of the fire. And so the people were driven out, and half a mile of close-built houses was abandoned to

the burning, while everywhere preparations were made for the last desperate fight.

Early in the morning Nob Hill, famed everywhere as the home site of some of the city's greatest pioneers, was devastated. The hill looks down precipitously toward the east from Powell street, and commands an exquisite view of the bay and straits. The world has few such choice spots to offer. In early days when it was far from the whirl and bustle of the growing city, its slopes were chosen for the palaces of Leland Stanford, Mark Hopkins, James L. Flood, and Collis P. Huntington. Later the Crocker mansions were added, and later still came the Fairmont Hotel on the very crest of the hill, towering as a guardian above the entire city, and overlooking the bay for miles. The immense caravansary was not fully completed, but had already become one of the crowning achievements of the west. The home of Mark Hopkins, which had been given to the University of California for an art institute and gallery, contained a number of the world's famous paintings, as well as statuary and bronzes of the finest, and represented in the West what the Metropolitan Museum in New York represents in the East. Students from all the coast cities attended its lectures and classes.

When it was seen that there was no way to save it, a young officer impressed on-lookers to help his small force in removing the more choice of the collection. No wagon could be had whether for love or money, or upon requisition. Many of the pictures were cut from the frames and rolled up; thus a single man could carry several at a time out of

harm's way. But the time was too short and the heat grew too great to get all away. The marble pieces were set out in the middle of the Flood lawn, as were many of the pictures, also. Later, when the fire came, they were burned there.

The Institute was given up. The houses and the hotel were deserted. What has been saved was a mere bagatelle to what was lost. Nob Hill, which for years had stood sacred to the exclusive and the elect, became in its ruin no different than any other of the hills already devastated by the conflagration. Its majesty was no more—its tradition a mere legend.

The officials were forced to abandon their temporary headquarters in the Fairmont, to which they had fled the previous afternoon, in fancied security, when the advancing fire drove them from the Hall of Justice. What a transitory affair the city government had become! Determined to get beyond the possible reach of the flames in this latest move, the Mayor and his helpers established themselves in Franklin Hall, on Fillmore street, a mile west of the Fairmont.

Skirting the far line where it was seen that the conflagration must be checked if anything of the city was to be saved, the soldiers waited, as a force in the field waits to be attacked. The exhausted firemen lay down in the streets to gather strength for the last battle. A few engines were there with fires lighted, but burning low, and in the street snaked idle hose, a mile long, their ends dipping into the strait. Dynamite was brought. Loaded field guns were trained to rake the east side of the street.



Photos by Waters, Weidner, Dana

Watching the Fire

Everything was put in readiness, and the siege begun.

It became chiefly a day of waiting. The streets and open spaces beyond Van Ness were thronged. Some refugees were watching in Lafayette Square, but mostly the people thereabouts were those who had been on the hills yesterday—today drawn irresistibly back by the fascinating horror of it all. There is something almost pleasant in looking at a monster.

Soon the flames were racing down the western slope of Nob Hill—racing across California street to meet the fire on the south—racing pell-mell beyond Sacramento street and back to the perlieus of the destroyed Chinatown. There was no wind to drive them, and no man there to stay them. They went where they wished, spreading in all directions at once, and making short work of the solid blocks of wooden buildings. The people and the soldiers waited for them to reach Van Ness. The firemen rested.

During this time the other conflagration, a mile away, was traveling toward the Mission, mowing down the buildings in its path with insatiable rapacity. The various fires south of Market had united, and with unbroken front, were sweeping on through streets and streets and streets, until one grew tired of counting. Persistent hard work held them in check on one side along Howard street, where there were a few tanks and cisterns. On the west they seemed certain to go as far as Dolores.

At places the fire crept but slowly, checked by vacant lots. At Twelfth and Mission streets fully

half a block was vacant. Near the Valencia street power-house the neighborhood was sparsely built. Except where open spaces retarded it, however, the fire was quick in its work. A note pinned under a door-bell on Guerrero street told "May" that at two o'clock "Ethel" had gone to "Bessie's" on Capp street, three blocks away. At half-past two Capp street was burning.

The Railroad Hospital at Mission and Fourteenth, and the St. Francis Hospital nearby, were blown up, but without checking the flames. Extending out from here for a few blocks was the more densely populated portion of the Mission. Close-standing wooden houses and flats fed the flames in rapid succession. But as the fire neared Twentieth street it abated slightly, because of the wider spaces here and there between the houses, many of the individual owners having large lawns around their homes.

The firemen had been fighting continuously from the first—fighting against hopeless odds, but dogged in their determination to leave nothing undone that their limited means would permit. Toward evening their strength failed them. They lay down in their tracks and gave it up, too weak to drive themselves to further effort.

Meanwhile the other fire was nearing Van Ness with the mad rush of a storm. It came on, and on, an angry, terrible power, before which men bowed their heads and trembled.

✓ The hours of waiting were over; the time of battle had arrived. The cannon were unlimbered, dynamite charges were set, and soldiers, firemen,

from street to street, was terrific. And ever there was a cracking and lashing of whip-ends overhead.

In the morning it had been determined that the Western Addition should be saved at any cost. By night millions of dollars worth of property lay low in ruin. The price had been paid; and what a price it was!

It had been a magnificent spectacle, but one whose horror brought no fear to those who watched. They saw in it the end, the furthestmost limit of the fire, and rejoiced that it had been checked. It was comforting to know that though the fire was at its worst, its progress had been stayed.

Vain joy; for in the end it seemed that after all the fire was not stayed — that all that had been done had been without avail. Not even the width of Van Ness avenue was a bar to the fierce heat of the conflagration. Along the west side of the avenue the houses were smoking. Firemen ran back into the crowds and called for volunteers. Men responded, and forcing their way through the cordon of soldiers, fought the flames with wet blankets and mops and the little water that four engines were able to pump through the hose from Fort Mason.

The spire of St. Mary's cathedral began to smoke; then flames shot up nasty menacing tongues from the extreme point of the top. The stream from the hose would not carry so far, so men climbed the sheer tower, and hanging on somehow, chopped away the burning parts above. Then they stayed on the roof until the fire around subsided, guarding the exposed woodwork with a zealous care.

Smoke began to curl up from Claus Spreckels' residence, on the west side of Van Ness at Sacramento street. Placed far back from the street, substantially built of stone and steel and tile, it had seemed fit to withstand any attack. It seemed indeed that if it could not be saved, there was no hope of saving anything that lay beyond.

At last the fire-fighters—valiant, desperate, determined to the end—began to lose heart and were ready to admit defeat. For two days they had fought, and during all that time the best that they could do was pigmy-play to the flames. There had been an effective stand at the water-front, and a few isolated buildings had been saved. The rest of the battle had spelled victory for the fire, until just now the growling pack of wolf-flames had been driven back with solid shot and explosives. Now again they were creeping back, and with an ugly snarl had taken a fresh hold. This state of things was not without its effect. Men lost their tenacity—were ready to quit. It seemed useless to make a fight.



Photo by Muller

Mission Fire from Sixteenth Street Hill

Yet the fight had to be made, and then once more those who were in the battle ranged themselves in front of the fire. The firemen, the dynamiters, the volunteers from the bystanders prepared to make a final stand at Franklin street, ~~one block west~~ of Van Ness. The water forced through leaky hose from a mile away was not enough to save the Spreckels mansion or the houses behind it on Franklin street, but was sufficient to protect those on the far side of that thoroughfare. Down Franklin went the fire, and with it those who were fighting—dynamiting the houses in its path, protecting those across the way, and striving in vain to check its advance at each cross street. Across Sacramento street they followed it, and California, and Pine; at midnight they were at Bush. The firemen, on duty for over forty hours, reeled at their posts. Volunteers crowded thick around the one hose, swinging it now this way, now that, as it was needed. Gradually the fire had grown weaker. At last when it reached Sutter street its advance was stayed. The flames licked up the buildings on the north side of the street. The houses on the opposite side blistered and peeled, but their wide lawns and the water saved them. The flames lessened and died away. The city beyond was saved. It was almost dawn.

The battle had been fought to an end—the victory won—and there was not a heart among all who knew that did not throb with thankfulness. The men who had done it were too tired to think much about it. The gratitude of the others who had seen it done was too deep for tears. The tension had been so

great that there was not even enough strength left for a cheer. But all knew what might have been, and understood.

While this was going on others fought the same fight far out in the Mission. In its westward sweep the fire came to Dolores street—a thoroughfare as wide as Van Ness avenue—first at Sixteenth, then at Fifteenth also, and at Seventeenth. Finally all the way out to Twentieth was ablaze on the east side, while men fought to save what lay to the west. The struggle at the Swedish church, at Fifteenth and Dolores, is typical. Half a block away a pool of water was found in an empty lot. It was carried to the church in buckets and milk cans. These were passed up to the men who were plying wet blankets and cloths on the roof and steeple, and thrown down again when emptied. A barn that stood near the precious water was dragged down with long ropes by many men, that it might not take fire and drive out those at the pool. Four times the flames took hold of the roof of the church; four times they were put out; in the end the church was saved.

The fire did not cross Dolores street, nor did it get beyond Twentieth. Along Nineteenth were open spaces—the Youths' Directory with its large playgrounds; a house with a large garden; wide lawns. Water had been found, too, on the Twenty-second street hill. Young men and boys dragged hose lines up to the reservoir, and then went back and started the engines. They incited the firemen to further efforts, and held up doors as shields against the heat, while the streams were directed against the flames. The wind, too, which had come

from the northwest; began to blow from the south. By three o'clock that morning the fire was over. All beyond was safe. For the second time that night the pack of wolf-flames was repulsed and driven back; and the beginning of the end was in sight.

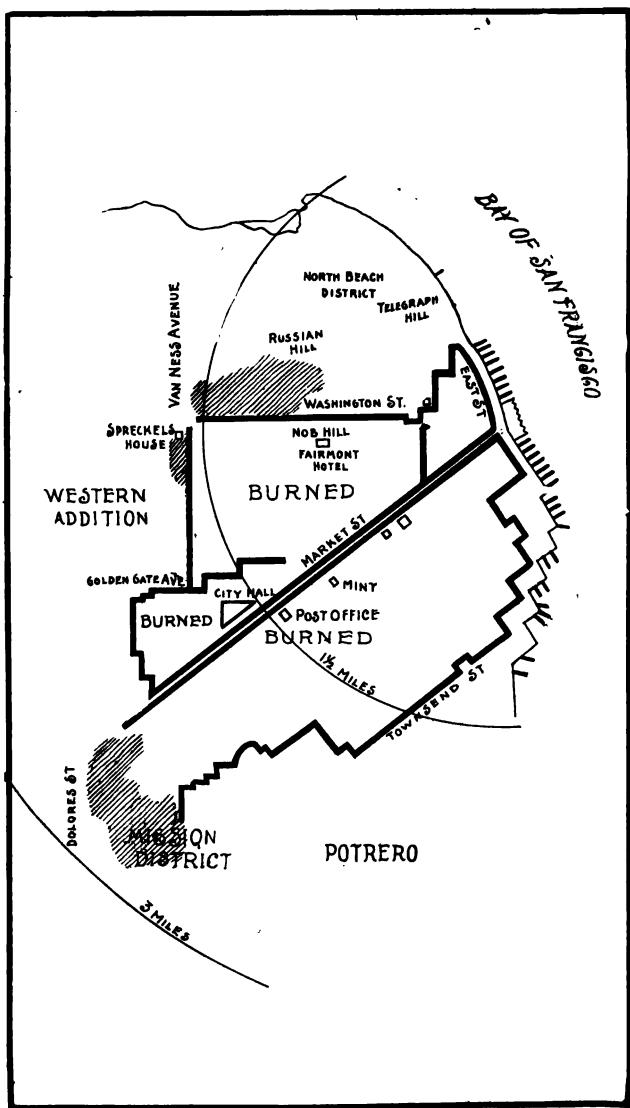
The fire was within very clearly defined bounds on three sides, but what was happening on the fourth was pitiful — heartbreaking.

By some mischance, some freak or accident, some perversity of a malicious fate, a tiny wisp of flame had darted upon the cornice of a house just east of Van Ness and across Washington from the sea of fire that raged there during the afternoon. So tiny was it at first that a cupful of water would have sufficed to extinguish it. But at the time everybody was busy with the fire at the Spreckels home and along Van Ness avenue, and it was not seen; it started a conflagration that burned during two days.

From the far-away wholesale district clear to Van Ness, the south side of Washington street was in ruins, while as yet the north side was untouched by the fire. Nowhere in all that distance had the flames leaped its slight width; but when the back-firing added all that lay near Van Ness to the conflagration, the heat was too intense for the houses facing it to withstand. The dynamiting had been stopped just the width of a street too soon. One more explosion; a little less confidence in a victory not yet won—just this precaution, and the flame that was destined, like those that had sprung up in many places at once early Wednesday morning, to devastate many acres before its course should be

run, would never have started. There would have been no cornice for it to fasten upon.

The light westerly wind was soon fanning the little jet of flame into a blaze that was quickly spread to the house on the east, and sped down Washington and back upon the other streets to Vallejo, gaining momentum as it raced. By nine o'clock it had reached the scattered houses of Russian Hill, an ultra-fashionable district stretching northwest from Nob Hill to the bay. Here there was a hand-to-hand encounter between the flames and the people. There was not much to work with—just a little water stored in bathtubs and pails; just a little wet sand thrown on a smoking roof, or a mop laid on an igniting window-sill; just a sizzling stream of soda water from a syphon; just a bottle of wine converted into a hand grenade. In their desperate strait they used anything. Once a boy threw mud from the street at a flame and smothered it. Again a sack of flour was scattered over the burning portion of a roof. Men hastily nailed cleats onto roofs that they might climb gables with greater ease and safety. With this precarious footing they worked on, heedless of danger, intent only on saving their homes. Unerring of foot they climbed to pinnacles that yesterday they would have trembled to think of. It was a time for the testing of men's strength. Vacant lots, houses set down in the midst of gardens, and men who worked like maniacs, were the salvation of many of the elegant homes on the hill. Many were saved, too, only to burn on the following day.



Map Showing Fires at End of Second Day

With inconceivable rapidity the fire sped down the eastern slope of Russian Hill and into the close-built valley between there and Telegraph Hill, racing most rapidly eastward along Washington street and spreading northward, also, as it hurried along. The little wisp of flame had become a roaring conflagration that crossed Vallejo street (four blocks north of Washington) five blocks abreast. By sunrise Friday morning it was working up the steep slope of Telegraph Hill on one side, and back upon Russian Hill on the other, while in between it tore its way through the North Beach district toward the bay.

The Italian settlement was on Telegraph Hill; Broadway, at the base of the southern slope, bristled with the unpronounceable names of restaurants and wine shops and hotels. It was quite as famous in its way as Chinatown, and no visitor to the city had completed his rounds until he had been to dinner at one of its many restaurants. On Montgomery avenue, running obliquely across its western base, was St. Francis church, oldest in the city after the Mission Dolores.

✓ All Friday morning the south and west slopes burned. On the heights the houses were hung with blankets saturated in casks of wine (real "Dago red") and many were saved. By such primitive methods, also, were the flames stopped at Montgomery street just west of the precipice that forms the east face of the hill. A fringe of houses, lonely and desolate, tops the bluff—all that remains of San Francisco's "little Italy."

To the south lies a strip of level country. The fire of Wednesday had passed it by; but its destruction, though long deferred, was effected at last by the conflagration which had sprung from that rapacious little flame at Van Ness and Washington. Since Wednesday empty whiskey barrels had been taken from a wholesale liquor house on Jackson street to the new Custom House excavation near by, and filled with water. The part they played in the fight against the flames is best shown by the block between Washington and Jackson, and Sansome and Battery, which came out of the fire unscathed.

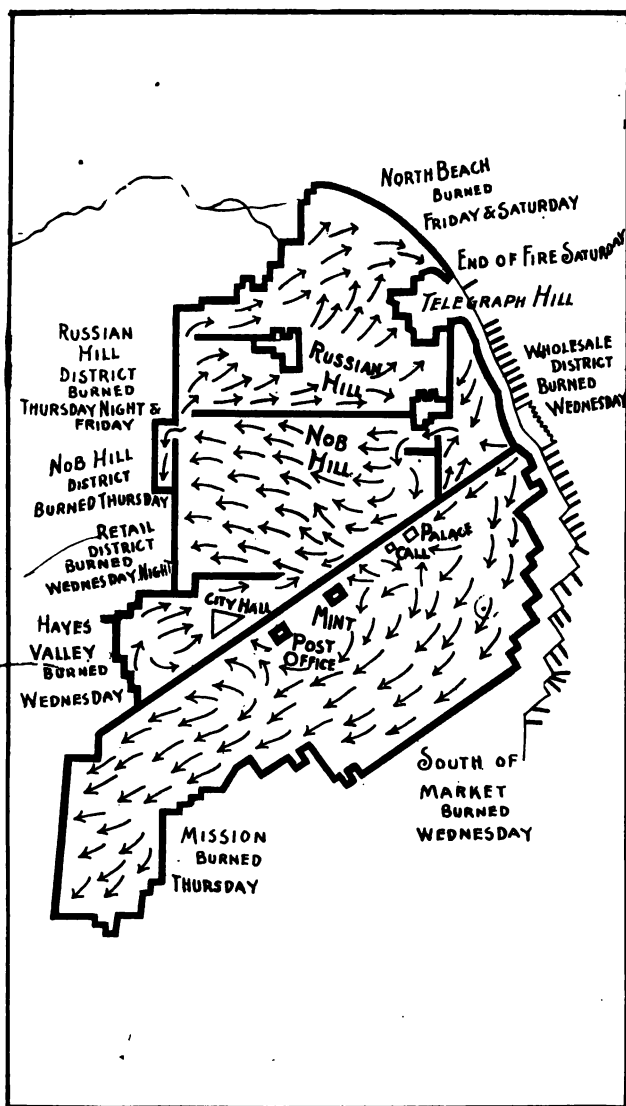
During the early morning, too, the fire had raged through the densely built houses of the North Beach district. It was a second "south of Market" in the manner of its construction, and in the manner of its burning.

The people who still remained there (sleeping, many of them, in fancied security) found themselves suddenly cut off from retreat, by the fire which swept upon them from Russian Hill and Telegraph Hill, and through the valley between. On three sides was the fire; on the fourth the bay. They made their way to the beach, and were taken off in small boats sent to their rescue. And through the city ran the grim report that thousands, unable to escape, had been burned to death.

At the great open spaces near the bay the fire stopped; there was nothing within reach that could burn. It had dwindled down to the matter of a few scattered fires at the base of Russian Hill. Long lines of hose brought water from the bay to quench

them. At last the end (the real, final end) of the fire seemed at hand.

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VII

THE WORK OF THE FIRE

When Sunday morning came the end had been reached. Overnight there had been a drenching downpour; but even so the sunless morn of Sunday was the happiest since the earthquake, for the fire was out at last, and the smoke had cleared away. The days and the nights that had passed had been for many a time of terror. By night there had been a little sleep, but that infested by a hideous phantasmagoria of a malevolent earthquake, vicious, spiteful, coming to engulf them; and of a fire, stealthy, relentless, ever stealing closer, and coming upon them at last to burn up their little bundles and themselves where they lay beneath the trees. By day there had been the morbid turmoil of distorted thought that follows upon the heels of loss—of the loss that may be written in figures, and the other that comes only to idolatry. Day and night alike had been filled with anxious, dreadful, helpless waiting, while the frequent dynamiting told that the fight was not yet won—that the danger was still present.

Except to those who had felt the tragic grip of the calamity, it was the desecration of the city, perhaps, that hurt most; for with the feeling of regret for the clothes and chairs and whatnots that made up their personal loss mingled a fierce resentment at the wantonness, the willful rapine, of the flames. The gods that make a city loved of its people were being demolished, their temples de-

spoiled; and never in all the years of their Babylon had they been worshipped as in this last hour of their adoration. Upon all alike fell this burden of sadness. The man who had lived in the city that was, and he who had dwelt beyond the line, stood sorrowing at each other's side before the smoking pyre of the sacrifice.

A whole city had been destroyed—a whole city with all that it stood for. The wholesale and the retail districts had burned. So had the manufacturing and financial districts; the districts of theatres and clubs and hotels and apartments; the residence districts where two hundred thousand people dwelt. Unburnt there were the homes of about as many more, and the second-rate stores and little businesses of a residence district; nothing else but the waterfront and a few scattered factories. San Francisco was no longer a city—only a collection of dwellings.

The earthquake had deprived it of the mechanical conveniences of a city—cars and light and power and water and telephones. The fire robbed it of all the organized specialization which distinguishes a city from a hamlet—organized businesses, hotels, theatres, stores. Without them San Francisco was merely a great village—the largest village ever known, too. In a way it was a gigantic camp.

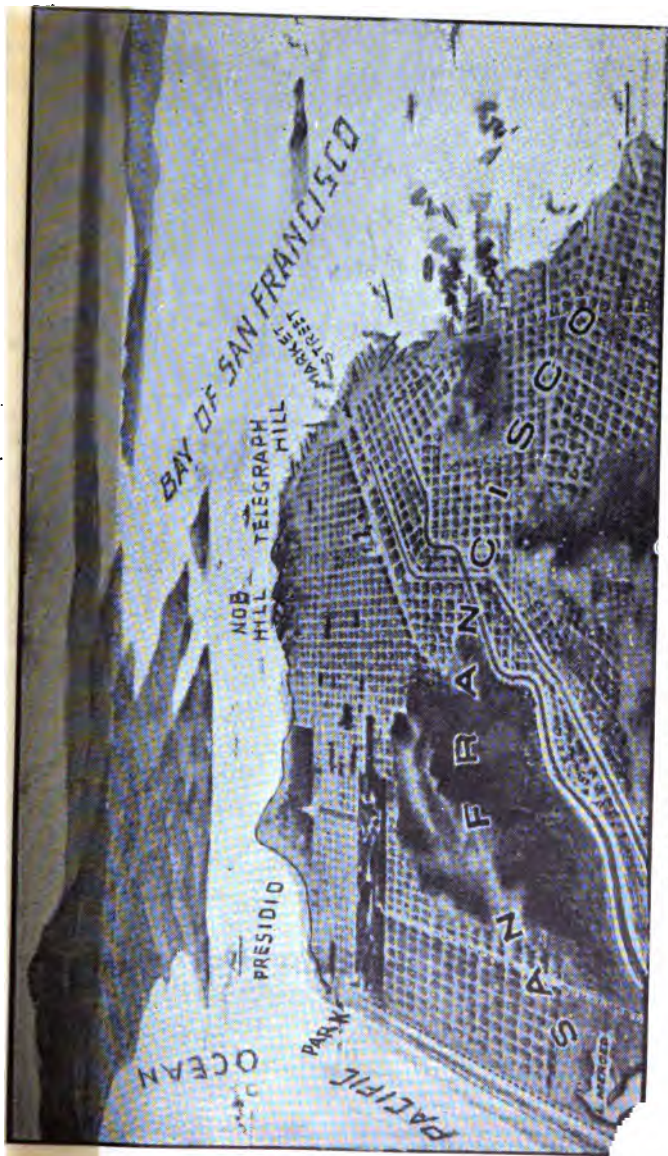
The money value of the property destroyed can never be definitely known. The fire had burned 490 entire city blocks, and portions of 32 others—2593 acres in all, or 4.05 square miles. The destroyed structures, if placed together, would line both sides of a street a hundred miles long. Two hundred thousand people had been rendered homeless.

the entire goods and chattels of this multitude consisted only of those pitiful bundles which they had wearily trundled over the cobbles in trunks or toy express wagons or baby carriages.

Insurance claims covered about \$300,000,000, from which it is safe to say that the insured property was worth \$600,000,000; and there was probably as much more not insured at all.

The municipality lost property worth millions and records that were invaluable. Besides the destruction of the City Hall and the Hall of Records, the Hall of Justice had burned, and the County Jail, from which the prisoners had been removed to the military prison on Alcatraz Island. The Police Department had lost heavily. In the first hours of the fire the Southern Station, located on Clara near Fourth, was destroyed, entailing a loss of \$42,000. On the second day the Harbor Station went. The Mission Station had been so badly damaged by the earthquake as to be counted worthless. Of the things that could be replaced by an expenditure of money there had been a loss to the police amounting to \$232,195. But over and above this was the loss of records (among which the Rogues' Gallery was an important factor) that had cost \$200,000 to compile, but whose real value to the department was beyond a monetary appraisal.

The Fire Department lost thirteen engine houses and one water-tower house — among the saddest depredations of the fire, for it occurred while the men of the department were doing their best to save the property of others.



Bird's-Eye View of San Francisco from the South

Of the public schools thirty-four had been destroyed, with a loss to buildings and equipment of \$1,532,570. Not included in this estimate is the Girls' High School. Though beyond the zone of the fire, it was so badly wrecked by the earthquake as to be entirely untenable.

Every commercial and professional interest had suffered, some almost to the point of extinction. The loss in supplies, stocks, buildings, machinery, office equipment, houses and household effects was enormous. The business district was a maze of gaunt brick walls and tangled iron. In the residence districts which had felt the blight of the fire, there was nothing but chimneys, and a worthless wreckage of bath-tubs, melted crockery, and flatirons, with the occasional frame of a sewing machine. So complete had the work of the fire been in both instances, that not even ashes or cinders or embers remained.

Then on the other hand were the things that had been the traditions of the city; the theatres and restaurants and dear midnight frivolities—the quaint, unusual settlements, Celestial and otherwise—the art and music and science, the records of Argonaut days. All were gone.

The art quarter, around which hung so many memories of light-hearted workers, of men and women who mixed plenty of merriment with the seriousness of life, was gone. The quaint old studios were gone. One queer old restaurant, where bygone artists had caricatured each other on the walls, and where footprints on the ceiling bespoke the top-turviness of Bohemia, survived alone, amid the

ruin of the haunts of the laughing sad crowd who had been its patrons.

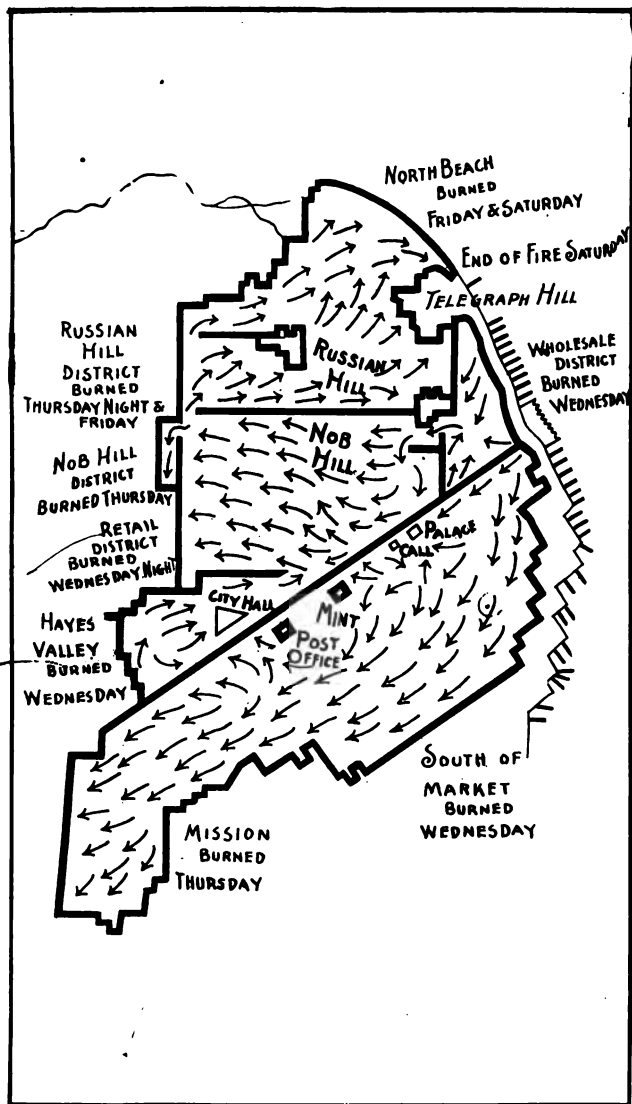
\ For many years San Francisco had been famed for its restaurants. Cosmopolitan to an extreme, every race in the world that pretended to be a race at all was represented by its characteristic café; some by many. \ Everywhere were to be seen Greek, Italian, Hungarian, Spanish, Mexican, Swiss, Kosh-er and French restaurants; the latter of various sorts, ranging from the one of four courses with a bottle of red or white for "two bits," to the place of cosy rooms and elaborate prices. \ There were the after-theatre places that knew only the nationality of Bohemia; others without even this race distinction—merely San Franciscan. \ There were the chop suey "joints" in Chinatown, \ too, where society was wont to go for a lark, \ and the little mongrel places along the Barbary Coast famed for their tamales, and enchiladas, and other queer-sounding things. \ No one really knew how much a part of the inner life of the city the restaurants had been until they were destroyed.

Chinatown had come to be but a memory. The bright lanterns, the little grated windows, the balconies that whispered of romance, the flaring dragons, were gone. Gone, too, the ill-smelling fish markets and cellar shops, the bazaars, the gambling dens, the places where opium was smoked in guarded secrecy. Everything that had made the little foreign settlement a tradition throughout the world had disappeared.

Telegraph Hill, upon whose slopes the scions of sunny Italy and Spain and Portugal had breathed

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the life of the home-land, was a bed of ashes, with here and there a chimney to mark the grave of some dead home.

\Not a theatre in the city was left. The Tivoli, where seasons of comic and grand opera alternated; the Orpheum, vaudeville's laughing center; the Columbia, transitory home of the "stars"; the Alcazar, where a stock company made fun in farce and comedy; the Grand Opera House, where un-"trust"-ed stars and the Metropolitan Opera Company came from time to time; the California, around which clung memories of McCullough and Barrett, but sunk in its last days to burlesque; the Central, with its glaring melodrama; — these and a score of others had gone down before the unrelenting flames.

\Every hotel was gone.\ The famous Palace, with its renowned courtyard, was a labyrinth of bare walls. In the beautiful rooms of the St. Francis there remained only ruined marble and the fluffy white ash of costly furniture. The Grand, the Occidental, the St. Nicholas, the Lick, were tangles of water-pipes, window-weights, and bath-tubs.

\All of the great newspaper plants were burned.\ The entire establishments of the Call (of which the business office only was in the Spreckels Building), the Chronicle, the Examiner, the Bulletin, the Post, and several published in foreign tongues were destroyed.

\The clubhouses with but two exceptions were consumed.\ The men of the Cosmos and the women of the Century still had their homes, but of the others not one remained. The Bohemian, with its old masters and its quaint library, the Pacific Union,

the University, the Union League, the Olympic (oldest athletic club in the world), the Press, the University of California, the Family, and a dozen besides, had gone.

The studio of William Keith, the famous artist, was burned on the afternoon of the first day. A few devoted friends took from it the full collection of about two thousand pictures, and loading them on an express wagon carried them to a house far out on California street. The next day all but twenty-six were burned.

Of the libraries there was scarcely a one that did not suffer almost complete annihilation. The Public Library, which in its various branches contained 166,344 volumes before the fire, could count only 23,000 afterwards. These were all in the branches beyond the fire zone. The Mechanics-Mercantile Library, established in 1853, and containing 200,000 volumes, was totally destroyed, as was also the collection of 12,300 scientific books of the California Academy of Sciences, dating from the same year. Among others totally destroyed were the Law Library of 50,000 volumes, and the libraries of the Astronomical Society, the Bohemian Club, the Chamber of Commerce, the San Francisco Medical Society, St. Ignatius College, and the Young Men's Christian Association. The Sutro Library of 200,000 volumes, rare old black letter tomes, invaluable and irreplaceable, was stored partly in a warehouse on Sansome street and partly in the Montgomery Block, and lost only 75,000 volumes.

A few records and stuffed birds are all that the Academy of Sciences had left with which to make

its fresh start. On Wednesday the records of the Academy and certain specimens of rarer bird families had been removed by the director of the museum and his assistants. First they were taken to Russian Hill, but when the fire climbed its western slope they were again removed—this time to Fort Mason, where they remained secure, a pitiful remnant.

\ Old Pioneer Hall, home of the Society of California Pioneers, was burned early on the first day of the fire. \ Not a single record of the Society contained there, not a scrap of paper that bore the stamp of early days was spared.

\ Old San Francisco had been destroyed—absolutely, completely. All that remained was of the new generation. Everything of pioneer days, every building with a history dating from the early years of the city's life, had been wiped out, save a few of no importance near the Appraisers' Building. The old Niantic Block, built over a stranded ship; "Fort Gunny-Bags," from whose windows men had been hanged by the Vigilantes of the '50's; Meiggs' Wharf, from which "Honest Harry Meiggs" set sail with several hundred thousand dollars belonging to trusting depositors; were all consumed. \ The entire district that had been young San Francisco was gone.

Gone, too, was the city of the railroad builders, and of the Comstock operators—Stanford, Crocker, Huntington, Hopkins, Flood, Fair, Mackay, Sharon, Ralston, Lick. Nob Hill, once covered with their magnificent residences, was an acropolis of picturesque ruins. The buildings where these mighty men of the growing city had done their work—the Ne-



Map Showing Burned District

Small Map Shows Thickly Populated Portions of City

vada Block, the Stock Exchange, the Lick House, the old Flood Building—were no more. The old Mission Dolores looked across an empty century to a city robbed of its past.

Truly San Francisco had become a city of sorrow, grieving over the loves and foibles and vanities, the business triumphs and the pleasures, that were no more. Of those things of which it had been justly proud, not one remained. In the temple of its greatness, no single stone was left standing upon another.

But greater than all the material loss, sadder, even, than the loss of the traditions that were gone, drowning out the thought of these (among those to whom it had come) was the bitter anguish of the personal tragedies of the fire. To all came the shock of suddenly being rendered homeless and nearly helpless, and the heavy blow of losing, almost in a moment, all the treasured possessions of years, about which had clustered the memories which make home and fireside sacred. Many had lost, in their little homes, all they possessed in the world, and they had seen their places of employment vanish as well, leaving them in absolute destitution. But to all this the people of the city were resigned—or perhaps they were stunned by the heaviness of the blow. To others, however, came the poignant grief of the loss of loved ones—the agony of suspense, the dread knowledge that their fears were confirmed.

Husbands out of town on that eventful day had fought their way back along disorganized railroads and past the barriers of military control only to find

their homes burned and their families gone, they knew not where; and in the awful time of flight where the flames followed fastest on the heels of the earthquake, in the district south of Market street, none knew the fate of those who dwelt nearby, and many could not be sure of the escape even of those living in the same house with them. By day and by night, untiringly, they tramped the length and breadth of the city, searching among the thousands in the various camps for those they loved; and by day and by night the soldiers, going up and down among the tents, called the names of the missing.

One man was seeking, almost hopelessly, for his old, weak, feeble-minded grandmother, a woman of eighty. He heard that she had been taken into some hospital or charitable institution somewhere in the city, and in the sad simplicity of a too-great grief, was asking all he met if they had seen her — as if they, perforce, would know his grandmother among all that they might meet.

Others sought children who had wandered away during the excitement before the home had to be abandoned; or husbands or wives, brothers or sisters, of whom they heard nothing. Sometimes the search ended in success and those who stood by witnessed joyful reunions whose sweet pathos they can never forget. Other sad searches continued in vain until at last the dreaded truth was revealed when the form of a loved one was recognized among the Coroner's grim display; and many other such anxious questionings find no answer save among the unidentified dead. In all, 438 deaths are known to have resulted from the

earthquake and the fire; and in many cases the identity of the victims was never determined. Many were the grim tragedies of that terrible day; many the sources of the dull grief that was felt in the camps. What suffering, what suspense, there is in some of them!

Down on the water-front had stood a cheap restaurant conducted by two men who were old friends as well as business associates. Nelson cooked; Johnson served. With the shock of the earthquake the frail building collapsed and took fire. With utmost difficulty Johnson at last extricated himself from the ruins of the dining room. Nelson was nowhere to be seen; the roaring pillar of flame that had been the kitchen made a search for him impossible. For many days Johnson sought his old friend and partner, but in vain. At last he took up his search at the old place. Bricks from the walls of neighboring buildings lay in great piles where the little restaurant had been. For days he worked among the hot debris; at the bottom, pinned under the overturned stove at which he had been cooking, lay the charred body of him he sought.

Through the south of Market district there must have been many such cases. Scores, pinned in the wreckage, were burned to death in the fires which followed the caving in of hotels and lodging houses. Many there were who were nearly saved and in the end had to be left to their cruel fate, despite all that they and their heroic, stout-hearted rescuers could do. One man who was taken out of such a wreck at the last minute tells of two others who were near him, and who, like him, were



Photo by Weidner

General View of the Burned District

unable to free themselves. Even as the fire approached they cheered each other. "I'm not at all hurt," said one, "but there's a big beam across my back and I can't get out. I guess they'll have us soon, though." "I could get out all right myself," said the other, "only that my wrist is held tight in the timbers." And there they had to be left while the merciless fire burned those around, and, finally, themselves.

In some places which the fire did not reach until long afterward there were equally harrowing occurrences. High brick walls crashed through adjoining lodging houses, carrying the various floors of the latter down in mingled wreckage beneath. Thus many were killed outright, or so badly injured that they died soon after. Here, too, were grim tragedies; for in adjoining rooms, perhaps, children cried in vain for parents lost to them forever, or mothers were crazed by the sudden grief that had come upon them.

In many cases people were killed by falling chimneys as they started up at the shock of the earthquake, or were rendered unconscious and so died painlessly when the fire reached them. Others, injured and carried away unconscious, recovered only to live through an agony of despairing search for those whose fate they could but surmise. Such cases, perhaps, contained the most harrowing tragedies of all. Grim indeed is one such story. It concerns a happy little family of five; father, mother, and three little girls. The father was very low with pneumonia. Unconscious, he was taken from the burning wreckage of his home, and conveyed to the

Presidio Hospital. In June he was discharged, restored to health; during all the time intervening he had had no tidings of his family. For a month he searched. At length he found his wife, who, like him, had also been taken out of the house unconscious, and who had been removed to a hospital for treatment for her injuries. She, too, had been searching for him and for their little ones, but of them she had learned nothing. Together they took up the sad search. At last, in one of the Mission refugee camps, they found their little three-year-old. From her joyous childish prattle they could get only a meagre outline of the story—only that some one had heard her crying and taken her out of the house as it burned. They continued the heart-breaking attempt to find the other little ones, but could get no clue. Finally the father began what he had dreaded and had put off as long as any hope remained—the search of the ruins of his home. There,



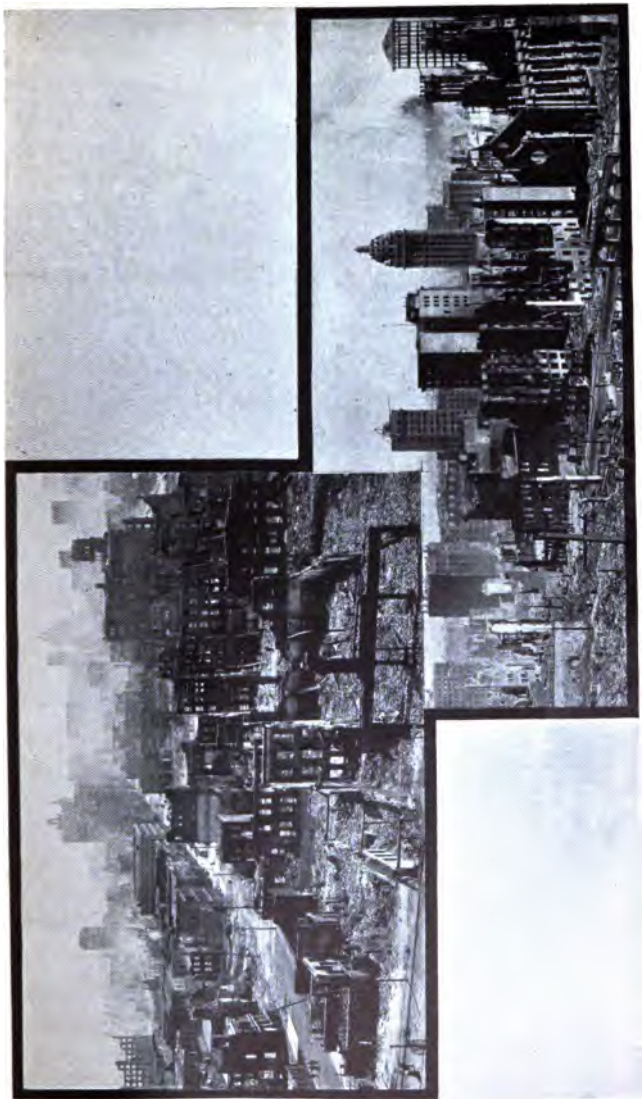
Photo by Aitken

Telegraph Hill in Ruins

at length, he found a few charred bones. The coroner pronounced them those of two small girls. His long search was over.

It was such tragedies as these,—whether known at once or only feared by those who, in suspense, did not learn the dread truth till later—that wrung the hearts of many in the camps, and, indeed, throughout the city.

There were indeed many cases of actual insanity. Many a pitiful story is indicated by the simple record of patients brought to the temporary hospitals as insane during the days of the fire. The shock itself; the harrowing scenes when loved ones were crushed beneath falling walls, or pinioned, helpless, to die by the fire's slow torture; the agony of suspense as day followed day and no news came, caused many a man to lose his reason during those trying times. During the first day of the fire many were brought to the emergency hospitals and treated as insane. In some cases the attack was but temporary; in others, however, it was necessary to place the patient in an asylum. During the first few days after the earthquake many temporarily lost their reason because suddenly deprived of a favorite indulgence—strong drink, in many cases; in others morphine or opium. Of these some recovered after a short period of raving; others made no improvement and seem permanently insane. There are stories of crazed men who could not tear themselves away from the horrid fascination of the fire; stories of men who in a moment's madness leaped into the flames. One such tale seems to touch the utmost depths of horror and grisly tragedy. A dealer at



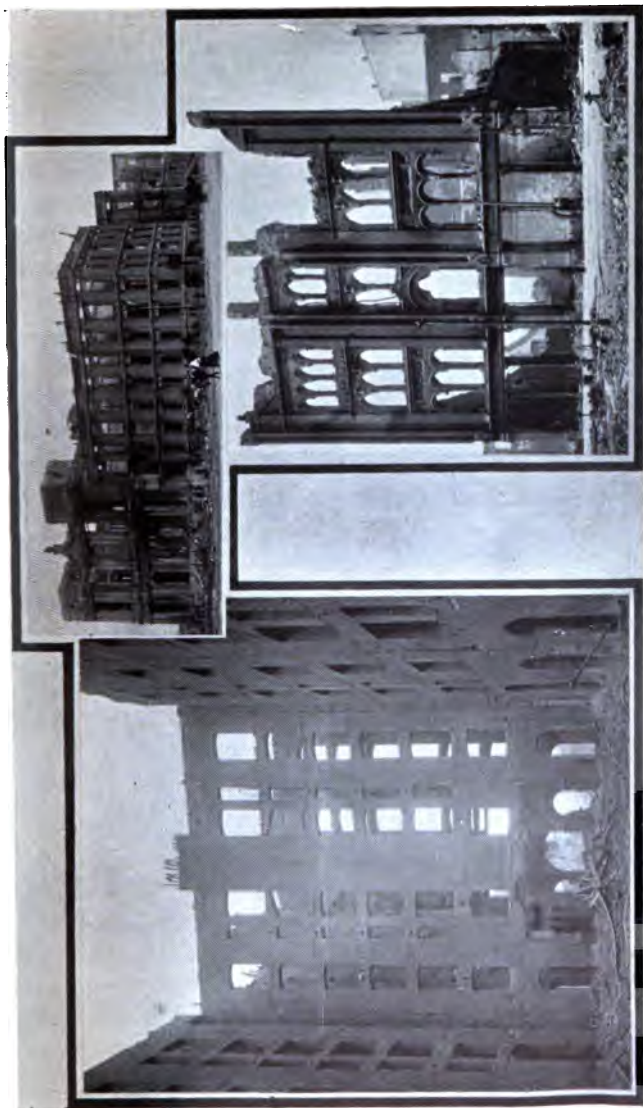
Photos by Waters and Weidner

San Francisco in Ruins

Looking South from Telegraph Hill—The Skyscraper District

the Italian market, it seems, was so terrified, or so unbalanced, by the sudden falling of walls about his place (a number of men and horses, backed up beside the market for their morning supplies, were buried beneath its wall) that he ran into the great refrigerator and slammed the heavy door behind him. In the confusion and excitement his absence was not noticed; and in a few hours the building burned. The refrigerator, covered with fallen brick, remained unharmed, and in it the unwilling prisoner, ignorant of the fire, ignorant of the death or flight of his comrades, awaited the opening of his lonely cell. For eight days and eight nights he remained there, breathing the polluted air of the refrigerating chamber (but slightly renewed by its ventilators), drinking the water which came from the melting of the ice, tearing at the raw meat which hung within reach. At length those who came to clear up the market heard faint sounds from within the refrigerator. They opened it. On the floor lay their former companion, faint, weakened, scarcely living, a hopeless maniac. What he had suffered they never knew; for within the day he died.

How many other such tragedies occurred in the seething cauldron of the flames will never be known, but there were unquestionably many cases where men lost their reason momentarily in the stress and excitement of the time. Many fought each other, needlessly, for precedence in getting into boats, and men were killed in such trivial quarrels. Others brought to the authorities stories so wild that it seemed certain their reason had left them; and even after the immediate excitement had



Photos by Dana, Weidner, Knight

Well-Known Buildings Destroyed by the Fire

COURTYARD OF PALACE HOTEL

ST. IGNATIUS CHURCH

PIONEER HALL

ended, people were telling of sights that never could have existed at all. They seem strange now, but were believed readily enough when told by supposed eye-witnesses.

Thus one man was sure that he himself had seen the Cliff House floating on the sea; if he had, its return to its accustomed place must have been marvellous to behold. A woman fleeing frightened to Oakland told, hysterically, of her terrible trip down Market street, and of crossing great crevasses there on rickety planks which served as bridges; so terrified was she by her wholly imaginary experience that she could not be induced to return to San Francisco! No less startling are the stories told of the great buildings on this same street. As one man passed below it, the Call Building was inclined at an angle of fifteen degrees from the perpendicular; another passed it just before it fell into the street; yet it is still standing, as straight and sturdy as it was when first erected. Sincerely believed, there can be but one explanation for such stories—a very reasonable one, too; that many saw only what their fantastic fears told them was present, and for a while many minds were unstrung.

It was a time of grief, of fear, of tragedy, blinding, griping, full of the pangs of death. To all had come a common loss, to some a bitter personal sorrow. To such San Francisco might well have seemed pitiless, cruel, remorseless, taking away their all, driving them forth despoiled, condemning their loved ones to sudden and awful death. And to all it might have seemed that the city had become the spoil of the gods, a city destined to destruction.



THE FLOOD MANSION
THE CROCKER MANSION



Picturesque Ruins

Photos by Knight and Aitken

ENTRANCE TO PALACE HOTEL
ST. DUNSTON'S HOTEL



Yet, even amid all the pain and the heartache, the love of the San Franciscan for his city rose supreme. The beloved city, the adored one, had been desecrated; her beauty shrunk into a shroud of ashes, her people scattered like chaff. But never had the city been so beloved, never was its will to do so strong, as in those days of bitter defeat. Indomitable, undaunted by thought of earthquake or fires, San Francisco—"serene, indifferent of fate"—began to shake off its ashes and rise from its ruins. The very immensity of the catastrophe was a challenge that stirred the brawn and the muscle and the brain of the stricken city into action. The optimism of adversity asserted itself. The people taught themselves to believe that it might have been worse.

A poem written by S. J. Alexander, whose occupation after the fire was cleaning bricks on the debris piles, shows beautifully the spirit of the people who set themselves dauntlessly to the work of rearing a greater city than had been destroyed. It appeared in the Century Magazine for August, 1906, and is as follows:

TO SAN FRANCISCO.

If we dreamed that we loved Her aforetime,
'twas the ghost of a dream; for I vow
By the splendor of God in the highest, we
never have loved her till now.
When Love bears the trumpet of Honor, oh,
highest and clearest he calls,
With the light of the flaming of towers, and
the sound of the rending of walls.
When Love wears the purple of Sorrows, and
kneels at the altar of Grief,

Of the flowers that spring in his footsteps, the
white flower of Service is chief,
And as snow on the snow of Her bosom, as a
star in the night of Her hair,
We bring to our Mother such token as the
time and the elements spare.

If we dreamed that we loved Her aforetime,
adoring we kneel to Her now,
When the golden fruit of the ages fall, swept
by the wind from the bough.
The beautiful dwelling is shattered, wherein,
as a queen at the feast,
In gems of the barbaric tropics and silks of
the ultimate East,
Our Mother sat throned and triumphant, with
the wise and the great in their day;
They were captains and princes, and rulers;
but, She, She was greater than they.

We are sprung from the builders of nations;
by the souls of our fathers we swear,
By the depths of the deep that surround Her,
by the height of the heights She may dare,
Though the Twelve league in compact against
Her, though the sea Gods cry out in their
wrath,
Though the earth Gods, grown drunk of their
fury, fling the hill-tops abroad in Her
path,
Our Mother of masterful children shall sit on
Her throne as of yore,
With Her old robes of purple about Her, and
crowned with the crowns that She wore.

She shall sit at the gates of the world, where
the nations shall gather and meet,
And the East and the West at Her bidding
shall lie in a leash at Her feet.

VIII

THE RELIEF

The Chicago, flagship of the Pacific Squadron, was cruising twenty miles off San Diego bay on the morning of the 18th of April. From somewhere came a wireless message, "Earthquake at 5:24 a. m., San Francisco," it ran. "Nearly demolished city. Call Building is down, and Palace Hotel, both telegraph offices, Wells Fargo Building. All water pipes burst, city fire department helpless. City is in flames."

No signature—no way of telling whence it came. Admiral Goodrich was quick to act. "Full speed ahead," rang the bells in the engine room. Early Thursday evening the Chicago arrived off Fort Mason, and communication was opened with General Funston.

On Saturday Admiral Goodrich took personal command of the struggle along the water-front. Already there was quite a fleet of naval vessels in the harbor—the fireboats Leslie and Active, and the speedy torpedo-destroyer Preble, flying the Red Cross flag, sent early Wednesday morning from Mare Island by Admiral McCalla; the Boston, the Marblehead, the Princeton, the Paul Jones, and the Chicago. The Preble was doing good work removing many injured to the hospitals about the bay, from the wharves where they had been left, and bringing fresh water from Goat Island to the thirsty in the city. When General Funston found that he could not "raise" Monterey (from whose presidio

he needed troops) the Preble took the message for him — a hundred miles of open sea in five hours.

The men in white caps and wide pants were on hand until an end was made of the conflagration; and during the weeks that followed they worked beside the soldiers and citizen volunteers, distributing supplies and policing the streets.

In the same mysterious way that "wireless" had reached the Chicago, the news of the calamity spread far and fast throughout the country—throughout the whole world. When the shock came the incessant clicking of the telegraph instruments connected with San Francisco ceased; the system was dead. As the unwonted silence continued it became known that there was something wrong near San Francisco. What, no one knew. About six o'clock Pacific time (about nine o'clock in New York) a strange message went out over the "Postal" wires:

There was an earthquake hit us at 5:15 o'clock this morning, wrecking several buildings, and wrecking our offices. They are carting dead from the fallen buildings. Fire all over town. There is no water and we lost our power. I'm going to get out of the office, as we have had a little shake every few minutes, and it's me for the simple life.

R., San Francisco, 5:50 A. M.

It carried dismay to those who received it. Could it be true? Or was it the dream of some crazed operator? Soon another message came—brief, significant:

We are on the job and are going to try and stick.

That was all, but behind it was a grim story whose details they could but guess. Through the day brief messages came, telling of the progress of the fire. As the news of the disaster spread, messages for loved ones in San Francisco crowded the wires. By noon the local office had a thousand of them, but as the soldiers and police would not allow the messengers to go on the streets to deliver them, no more were taken. The fire approached the office. At 11:05 the waiting crowds saw this message:

San Francisco says fire within few doors now. They are going to move out right now.
Q.

But in the afternoon they were still there, persistent, courageous. From the main office of the "Postal," on Market street near Montgomery, the chief operator sent this bulletin:

The city practically ruined by fire. It's within half block of us in the same block. The Call building is burned out entirely, the Examiner building just fell in a heap. Fire all around in every direction and way out in the residence district. Destruction by earthquake something frightful. The City Hall Dome stripped and only the frame work standing. The St. Ignatius Church and College are burned to the ground. The Emporium is gone, entire building, also the Old Flood Building. Lots of new buildings just recently finished are completely destroyed. They are blowing standing buildings that are in the path of flames up with dynamite. No water. It's awful. There is no communication anywhere and entire phone system is busted.

I want to get out of here or be blown up.
Chief Operator Postal Telegraph Office.
San Francisco, Cal., 2:20 P. M.

Meanwhile some messages were going out from Vallejo and nearby towns, and wireless items wer



Photos by Knight, Estey, Moller

Temporary Shelters

started forth to whatever office would take them. Efforts were made to reach Washington by Manila cable. Toward the end of the afternoon residents fleeing in automobiles reached working telegraphs, and sent out their frightened versions of the disaster. Thus in various ways the news went forth.

Everywhere prompt action was taken. For the time business was at a standstill. Relief committees were appointed, funds collected, supplies donated and purchased. Public subscriptions were raised. Newspapers became the depositories of funds. Benefit performances were given. Oranges, papers, and such articles were peddled at special prices by popular celebrities. In Los Angeles a woman raised a goodly sum by calling for contributions, at the top of her voice, on a crowded street corner. In Washington a little boy spent his spare time for weeks selling postal cards. He raised \$53.47—as large an offering in a way as the \$100,000 sent by one of the giants of finance. Physicians left their private practices and with many volunteer nurses came to the stricken city in hospital trains.

Every city and town and hamlet in the land gave unstintingly. As the destruction of San Francisco surpassed comparison, so the relief, springing spontaneously, almost without appeal, from every corner of the land, far exceeded everything of similar sort in history. Out of the common round of affairs sprung a magnanimous sympathy that impelled action—quick, almost impulsive in its spontaneity. Before night Secretary Taft had started army tents and supplies on their way to San Francisco, and had expended a million dollars. Congress put aside its

legislative work and hastened to make the necessary appropriation. Before it stopped the expenditure of \$2,500,000 had been authorized.

Commonwealths, municipalities, individuals—everyone—forgot the things customary in a dominant wish to give. Organizations of every sort—churches, corporations, clubs, banks—pledged themselves for varying sums; many millions in the aggregate. How ready and great was the response to the appeal that scarcely found a voice is well shown by the figures. Millions were subscribed within a few days. The total subscriptions aggregated \$9,015,812.23.

The railroads carried all supplies free, and gave the right-of-way over all regular traffic to the relief trains. Passenger service was off schedule for weeks. "Limiteds" took the sidings and forgot their record runs while thousands of freight cars rushed past on the main tracks.

Two hundred thousand people were homeless—unfed—without the means of sustaining life. A hundred miles of homes and business places had been destroyed. A city lay wasted and desolate—its hills swept bare—its people stricken beyond conception. The world had known nothing of sorrow so vast in all its history. The heart-strings of the nation vibrated to it, and those rumbling wheels of many cars, low on their springs with the burden of mercy, sounded soft as notes celestial upon a land affrighted with the discordant tones of a great disaster.

In the stricken city itself prompt measures were being taken to relieve the great suffering which it

had been foreseen would result from lack of food and shelter and clothing. Many went hungry on the first day of the fire, and even on the second day, and many, too, found the scarcity of water a serious discomfort. Thousands slept on the ground without even the rudest shelter. But before the city had stopped burning tents loaned by the army were being set up and food distributed regularly to the people in the camps. Even as early as the second day of the conflagration soldiers in various places were serving milk to women and children, and crackers and corned beef to all who came, and were dispensing water, sparingly, in the camps. For a time the whole city was dependent on the relief distributed by the soldiers, first from the government stores, then from the relief supplies as they began to arrive. Hardly a household in the city had a day's provisions. The city's supplies in the wholesale districts had been destroyed; money was very scarce, and for a time of no use at all, as everything had been requisitioned by the authorities. So it was that not only those who had lost their homes for whom provision must be made, but everyone alike. Within a few days after the breaking out of the first fires supply depots were established and bread lines formed at which the wealthy of the city, with baskets on their arms, waited their turn with the rest. During the first few days fifteen hundred tons of supplies were distributed daily. In the lines, besides the hungry, were many who had to be clothed, and many who had come to ask their way to the hospitals where they would receive medical aid.

Almost from the first physical needs were provided for. Scattered far and wide in vacant lots and parks and open spaces generally the refugees were gathered into regular camps. Among themselves the campers at once established their own disciplinary governments. Leaders were chosen, and certain regulations for the conduct and sanitation of the camps set down, which were obeyed implicitly, or broken at the offender's peril of expulsion from the camp. Later these governments were merged into the general relief organization.

Within a few days people began to find each other, through the newspapers' lists of "Addresses" and "Inquiries," and through registration at the various Information Bureaus. A fence near Golden Gate Park had hundreds of addresses tacked upon it. The Post Office Department carried letters written



Photo by Moller

Camp Established During the Fire

on scraps of paper, pieces of board, soiled cuffs — anything and everything — without charge.

What stories of suffering may be read, between the lines, in such items as these:

E. E. HINMAN, at, would like to find Mrs. Hinman, wife, in San Francisco.

BYRON J. MAXIM, if you are living, come home; your mother is crazy; bring May, Bessie, and boys; mother will shelter them.

MRS. W. J. LANE can find W. J. Lane at . .

INFORMATION and whereabouts of Mrs. C. P. Herman. Address C. P. Herman, . . .

ANYONE having knowledge of the whereabouts of Mrs. M. A. Healy will please communicate with her son, Fred A. Healy,

ANYONE knowing whereabouts of Julia Réddon, age 9 years, send word to Mrs. Pike,, Stockton.

MOTHER, Treany, Roy, Mae, inform Albert,

MRS. and MR. GEORGE WIRTH, come to Tony Wirth,

ANY INFORMATION of Mrs. Bloom and family will be appreciated by Helen Bloom,

E. KAPPENMAN — Are all safe at cannot get back. Papa.

Before the fire was conquered such queries were being printed; and for days afterward such requests for information, and the lists of people who were safe and had handed in their addresses, were the most important part of each day's issue.

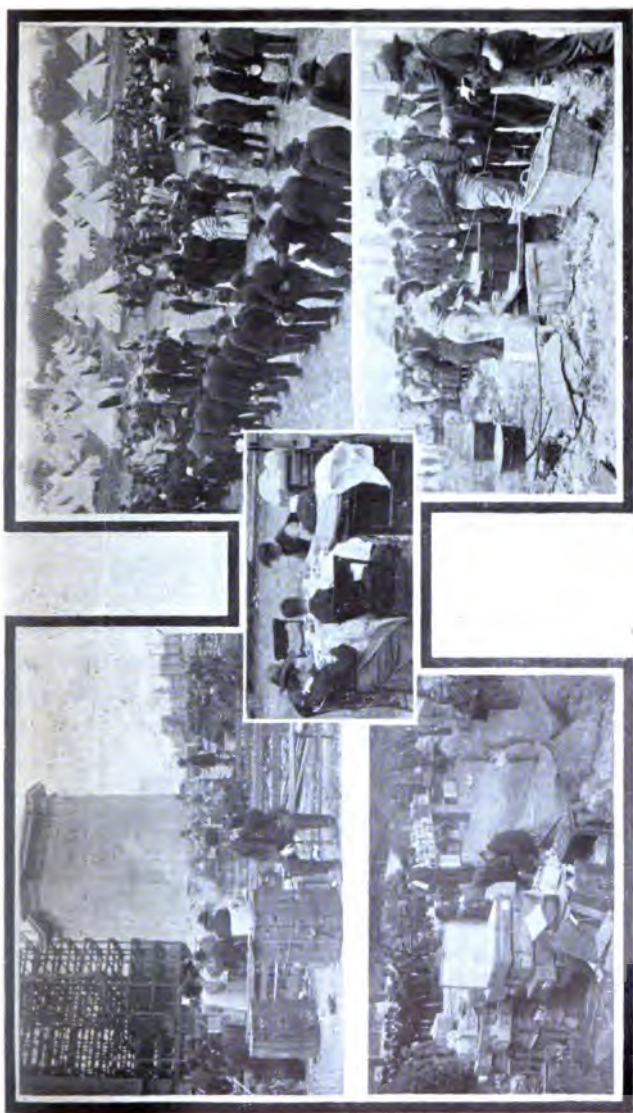
Many of the addresses in the lists of the saved were of places in Oakland and other nearby towns; for during the fire a tremendous, hurried, frightened, rush out of the city had taken place. At first the report that the ferry slips had burned had kept many away, but nevertheless large crowds crossed the bay Wednesday, and on Thursday, Friday and Saturday the great ferryboats, crossing the bay as rapidly as they could work in and out of the slips, were crowded to their utmost. The rush out of the city during these days had in it something, almost, of the feverish haste of delirium. It was not merely the burned-out who fled, but those also who were untouched by the fire. People fled from an expected visitation from On High; from a much-imagined tidal wave; from more terrible earthquakes which they feared were coming to destroy them utterly. Saturday and Sunday they fled from the dread fear that typhoid or smallpox was about to devastate the city. Many, of course, went out of the city because they knew of places where they would be better accommodated; but on the whole the exodus was frenzied, purposeless, unreasoning, mad. The current story, that the throngs pressing on the boats from the slip had crowded off into the bay those who had gone on in the lead, seemed almost possible, though of course unfounded. The fear of a smallpox epidemic, at any rate, seemed based on actual dementia. It resulted largely from warnings spread through the region near the Park, to the effect that the Park camps were infected with the disease, coupled with the admonition to flee at once, as a quarantine was imminent. Although there

were a few isolated cases, the condition of the camps at the time, and the subsequent outcome, indicate that this was very probably only a hallucination of an over-sensitive mind.

After the first rush of temporary relief it became necessary to make provision for the permanent care of the homeless. Through the generosity of the railroads, which carried out of the city, free of charge, two hundred and twenty thousand people while the fire was still raging, the congestion of refugees had been greatly reduced. Mostly the exiles went to the cities about the bay—Oakland, Alameda, Berkeley, and the towns in Marin county—but many went to the interior cities of the state, and others even farther. Transportation was free to all upon all the lines running out of the city. The transcontinental lines carried people half way across the country merely upon a request signed by any member of the Relief Committees.

The people living in the unburned sections of the city were at the same time taking into their houses relatives and friends as rapidly as they could find them, and in many cases making room for strangers as well.

As soon as the daily papers could give the subject space, another form of relief was undertaken by California cities. Places all over the state began to advertise that they would be able and glad to provide homes and work for so many families, ranging all the way from three hundred to three thousand. Some cities sent agents to the camps. When they went home many refugees went with them.



Photos by Estey

Breadlines in Camps and Parks

Over those who still remained, provident and judicious supervision had to be exercised. Ten thousand tents were set up. Barracks, built of boards from the unburned lumber yards in the far southern part of the city, were erected. As far as possible families were housed or tented together.

When other cities have been visited by great calamities the work of relief has been directed by forces outside of the stricken city itself. It was not at first understood by the outside world that San Francisco, even in the midst of its adversity, had risen to the care of its afflicted. Hence it was that President Roosevelt issued a request to the country at large to make all donations through the Red Cross Association, of which Secretary of War Taft was national president. Dr. Edwin T. Devine, head of the Charity Organization Society of New York, was sent out by the Red Cross to take charge of the relief. Secretary Taft, as national president, was in touch with Judge Morrow of San Francisco, head of the Red Cross Association of California. Secretary Metcalf, en route to the stricken city, was to co-operate with Dr. Devine and Judge Morrow. The President's plan was to put the Red Cross in entire control, seeing in it the only organization capable of a systematic distribution of the relief. Some friction was caused by the plan, as the city itself had from the first undertaken the care of its sufferers. But none doubted that the President had intended only the good of the city, and, indeed, when the facts were presented to him he withdrew the request.



Photos by Knight, Estey, Hecht
Permanent Camps for Refugees

When Dr. Devine arrived he found a perfect organization, and had only to co-operate with the local Relief Committee. Never before had a city struck down by calamity undertaken to direct its own relief work. By so doing San Francisco made itself unique.

At the first the care of the refugees in the camps had been undertaken by the soldiers. On April 22 Major-General A. W. Greeley, commanding the Pacific Division, who had left the city to attend the marriage of his daughter, returned to San Francisco. Under his direction the troops were the distributing agents of the relief. Rations were served raw, and the campers were their own cooks, using such contrivances as they had rigged up for stoves—often a few bricks with a piece of oil-can across the top. On July 2 the troops were withdrawn; in a letter of the previous day to the Mayor General Greeley expressed his satisfaction at the cordial relations that had existed between the army and the civil authorities.

After the troops had left, camp restaurants were established. A contract for running them was let to private parties, who were to receive a stipend from the relief fund for every meal served to refugees, and were allowed to charge a price for service to others. The plan would have succeeded had it not been for the greed of the contractors, who soon began to give unfit food to their wards.

One by one the kitchens disappeared; the Relief Committee became the caterers; and in the end all but one kitchen having been abolished, raw provisions were again distributed.

The work of relief continued upon a magnificent system, in which charitable organizations and churches affiliated with the Relief Committee. As the summer wore away it became necessary to make provision for housing the refugees during the winter months. New conditions had arisen. Although many in the camps had secured work, houses to rent were few indeed, and the price of those had been put up to prohibitive figures by penurious landlords. The families in the parks could buy their own provisions, but to pay rent at the advanced rates was out of the question. The price of staple articles had not been materially advanced by the fire, and had it not been that they had no place but the parks to live many would have been as well off (barring furniture) as before the fatal eighteenth of April. It therefore became the chief work of the



Photo by Aitken

Cottages Erected by Relief Corporation

Relief Committee to build houses for these self-supporters, and three-room cottages were erected in the parks. It was determined to properly establish the independence of the tenants by charging a rental. Six dollars a month was fixed upon; at the end of a year the buildings were to be the property of the tenants, to be moved where they wished. The indigents and the aged and infirm were still to be cared for, and in all tenderness to be provided with the necessities of life. But so rapidly had the city become self-supporting that, although there had been fully three hundred thousand people at the first dependent upon relief, by the middle of October the number of totally dependent ones had shrunk to a paltry three hundred and there were only a few thousand refugees in all the camps.

By this time the people generally had accustomed themselves to the new order of things. The fire was remembered, to a large extent, as a time for dating events as having occurred "before" or "since." Business systems had been re-established, and the old habit of life, though altered, had returned.

IX

THE RESUMPTION

In the vernacular of the gods who sit near the roof, San Francisco was quick to "get busy." While relief matters were taking up the attention of the entire country, the man-part of the city was casting about to see what it could do in the way of a fresh start. It was a little beginning, but full of hope and grit, and argued well for the larger work that should soon be undertaken—the work of building anew upon the ashes of the past. Professional men set up offices in front parlors; merchants established themselves at their homes or in such vacant stores as they could snap up; notary publics and public stenographers who had taken refuge in the camps, started afresh in their tents. Often a chair, a towel, a razor, a cake of soap, were the whole stock in trade of front porch barbers.

It was not a matter of hours, but in a short time people generally began to think of ordinary things again. Clerks and employees began to get in touch with their employers. Stenographers hurried across town on foot to take dictations, and letters innumerable were sent out by business men to tell their "customers" that it would not take long to have everything running smoothly, and that the customers had better send in their orders right away. Egotism sublime!

The first trade was in soda water. The city had "gone dry" by the Mayor's order on the morning of the earthquake, and to its eternal credit raised

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no objection when a similar edict kept it dry for weeks afterward. The lid was on and nailed down tight. This suggested a thirst-quencher to enterprising men, the need of which was further emphasized by the very limited supply of putrid, ill-smelling water that was doled out from the tail end of sprinkling carts. Facetious boys had threatened to go fishing in those carts, and even sedate old men called them aquariums. As soon as travel was resumed on Market street, as soon as Fillmore street was "discovered," they were lined with men and boys who made the neighborhood resound with the popping of stoppers, a nickel the pop.

At about the same time came those dispensing souvenirs of the fire for a consideration. It was remarkable how people who had been burned out and had scarcely any money at all went down town and spent a dime for a broken cup or twisted vase or other trifle from the ruins.

Then came the canvas restaurants and cafés on wheels and the fly-trap chop houses, that bore outlandishly spelled menus, and served the worst, the sloppiest, the most ill-savored coffee imaginable. But the alacrity with which it was downed, especially by the man who had earned some money and was at last proudly independent of relief rations (though the latter tasted better) was equally beyond conception.

These were among the transitory measures of an extraordinary nature—some of the things people did to re-establish themselves without extraneous aid. On the other hand, in that crowding whirl of momentous events, certain official measures stand



out prominently in their bearing upon the gradual return of normal conditions. Businesses had been thrown into a tangled mass of uncertainties. No man could do the accustomed things, and no one could tell, or even guess with a chance of being right, what anyone else was going to do. If affairs were allowed to go on, regulated only by the calendar, the result would be a state of chaos out of which nothing but ruin could come for many.

If the banks opened it was very probable that frightened depositors would start a stampede. Certainly some of the weaker would fail. If the calendar ruled business men would be confronted by notes falling due and going to protest, because their businesses had been temporarily wiped out. A like fate would be meted out to innumerable mortgagees. The statute of limitations would require the commencement of suits, which in the present disrupted condition of the courts was a physical impossibility.

Thus it became necessary, in justice to all interests, that everything should be held in suspense for a time. To this end Governor Pardee declared April 19 a legal holiday, a like act being unnecessary regarding the eighteenth, which by the mere force of circumstances was virtually one already. The Governor continued to specify each day in succession a holiday, until the extra session of the Legislature (which he convened on June 3d) had passed bills further extending the time of any contract which should have been performed during the holidays, to July 10; and also extending the time of the statute of limitations to January 1, 1907.

This combination of measures had the salutary effect of giving people a chance to think things out reasonably and sanely. It prevented the rushing in of fools to their own and others' undoing.

Certain other pieces of legislation were intended to remedy the extraordinary conditions prevalent in San Francisco, because of the loss of the books and papers in the public offices, acts concerning destroyed records and concerning land titles. The first of these provided a method of restoring the records of judicial proceedings "in substance and effect," in order that pending litigation might be continued; similar acts provided for restoring private and corporation papers. Another act, necessitated by the destruction of nearly all the Recorder's records, provided a means of establishing title to real estate (by publication, posting, etc.) without serving notice on anyone or presenting any deeds or similar papers, as in thousands of instances all such documents had been burned. This did much to inspire confidence among landowners, and to facilitate real estate transactions; in many cases it would have been otherwise impossible for owners to prove their titles.

In the meantime the city had had a unique experience in government. In the first stages of the endeavors to bring order out of chaos, the Relief Committee was supreme. The original Committee of Fifty was soon reorganized as a Committee of Forty, which through its various sub-committees, handled the problems before it. The Mayor of course was still Mayor, but he did his work with the Committee. The Finance Committee received and



Photos by Moller and Estey
Outdoor Kitchens

handled the Relief Funds, and arranged for the compensation of all whose property had been seized for the general good. Other sub-committees considered special aspects of the relief situation. One worked in restoring the water supply, another in the resumption of street-car traffic. Still others took up the problem of housing the homeless, sanitation, food supplies, hospitals, insurance, and arranged for the resumption of work by the judiciary and other municipal bodies, obtaining quarters for them.

Before the fire was out volunteer watchers were patrolling the streets throughout the night, to preserve order. It was soon seen that such patrols were unnecessary, and when on the morning of the Sunday following the earthquake, a prominent citizen, while engaged in relief work in an automobile displaying a Red Cross flag, was shot and killed, through a misunderstanding, by a member of a citizen's patrol, they were disbanded. For weeks, however, soldiers and militiamen patrolled the streets to keep order and enforce strange regulations as to lights and fires.

At all times the city government was in authority, although its work was done mainly through the committees and the military. Gradually the various departments resumed operations. The department of Electricity had been at work ever since the outbreak of the fire, doing its best to keep up a fire alarm system at least, and, afterward, restoring the lighting service. Other officials established themselves in stores and residences. The Superior Courts held their sessions in a newly finished Syna-

gogue, the finest building remaining in the city; the Justice Courts had a school building; the Police Department another. The physicians of the Health Department, first cooperating with, began to supersede the military doctors, and the police to take the place of the soldiers. The Board of Supervisors again came into being. By the end of May San Francisco was in the hands of its regular administration. Meanwhile the business world had also been working out its salvation in new and unusual ways.

The banks were among the first to catch their breath after the calamity. As early as April 23d the Oakland banks were paying depositors in sums up to \$30, and showing every accommodation within their power to persons from San Francisco introduced at the windows of their paying tellers. The bank vaults in the burned city had stood the fire admirably, and though they were for some days inaccessible, (and could not be safely opened for weeks), it was soon apparent that their contents were unharmed. This knowledge gave great assurance of the city's financial stability, for in those vaults lay over \$76,000,000 in cash and securities. Besides there were available securities abroad amounting to more than \$38,000,000.

In the Mint, saved by heroic work, lay \$200,000,000 in gold. The Government, through Secretary Shaw, was ready with assistance. Local bankers were permitted to deposit sums in any denomination with the Sub-Treasury in New York, and upon telegraphic advice of such deposits an equal amount was placed to their credit at the Mint. This



Photos by Waters

Signs on Tents in Camps

led to the establishment of a Clearing House Bank, which opened at the Mint on May 1st. A teller from each of the banks was in attendance. This extraordinary institution cashed checks drawn on the various banks up to \$500, provided they had first been authorized by the bank officials. For the commercial banks, where the tellers were familiar, in a general way, with the balances of the depositors, this plan was perfectly feasible, but with the savings banks, some of which had over fifty thousand depositors, conditions were entirely different. They did not feel justified in cashing checks except for those of their depositors with whose standing they were satisfied. These were required to execute notes to the banks, upon which they were given checks on the Clearing House Bank.

This remarkable bank was a boon to wage earners, particularly, as it enabled employers to meet, in part at least, their pay rolls for the unexpired week.

Soon the commercial banks inaugurated a system of special accounts whereby patrons were able to deposit funds and draw checks against them. These special deposits had no connection with old accounts, and carried separate balances.

Thus the financial situation began to work itself out. On the nineteenth of May all checks dated prior to April 18 were "cleared", and on May 23 all banks in the city resumed regular business. There was no excitement, no rush. Depositors who had lost their check stubs called for their balances, after they had stopped at the receiving window and put in their earnings. The banks had solved their own problem.

Importations of gold aggregating \$46,207,806 had been made from Europe and New York, with which to pay checks; but as it turned out, none of this was needed, as deposits exceeded withdrawals from the first. The imported money was soon returned, and was followed by local gold, sent for investment. Cash began to pour in far in excess of the most sanguine hopes. If confidence in the city's future had been shaken, it was speedily restored. During June the banks cleared \$121,677,692.77, a decrease of only 9 per cent. from the clearings of the same month in the previous year. During July \$160,631,793.87 were cleared, showing an actual increase of $8\frac{3}{4}$ per cent. over July, 1905.

At the very beginning, measures were taken to make important streets in the burned district passable and safe. Dynamiting squads were sent about to blow down swaying and threatening walls. Soldiers were detailed to impress anybody who happened to be luckless enough to pass their way into the work of throwing bricks from the center of the streets. Roadways, scarcely more than paths, were thus cleared, and travel, however arduous and beset with obstacles, was at last possible through the former arteries of the business section.

Gradually public utilities resumed operations. The Postoffice, which had lost many of its branches, was overwhelmed with difficulties, which were partially defined by a carrier who remarked that most of the house numbers had been rubbed off, which made it hard to deliver letters. The task of handling mail for a city in which 250,000 people had moved was Herculean. At one time fifteen hundred

tons of second-class matter were piled up on the Oakland mole, and for some time the first-class mail was very much congested in very many places. But the department was speedily reorganized, and the delivery of mail slipped back into its customary place, as a cog in the wheel of commerce.

During May the United Railroads was granted a temporary franchise by the Supervisors for trolley lines, to replace their old cable roads, and soon had gangs of men installing the new system. The Fillmore street line had already been reopened as soon as the Relief Committee's sub-committee had done away with all possible danger of fire by cutting the telephone, power, and light wires within two blocks of the street on either side. Cars were in operation there for a few hours on the Saturday of the fire week. Traffic was resumed by the United Railroads on April 28, on one line at a time, until all parts of the city were comparatively accessible. The rivals of the United Railroads were also quick to repair the damage to their properties. The Geary-street cable system was ready as soon as the tall chimney of its powerhouse was rebuilt. In spite of the widely circulated reports that the earthquake had wrecked the cable conduit, the roadbed needed only a few hours' work, where the slot had been warped by the heat of the fire. The California-street cable line was also in operation at an early date, although the fire had destroyed its cars and powerhouse and plant. For a time its machinery was operated in an exposed basement, while walls were being built around it.

The master stroke of the earthquake, from the point of inconvenience, to those who had not felt the tragedy of it, was divided into three parts: the destruction of the water system, the demoralization of the lighting system, and the throwing down of chimneys.

The water company, which hardly had a single supply pipe left unbroken, had restored a partial service within four days of the calamity; but in the meantime water had to be obtained. On the first day of the fire Admiral McCalla had sent lighters from the Mare Island Navy Yard, carrying 50,000 gallons of water. The Preble and other steamers brought water from Goat Island and Oakland. The Board of Public Works had their sprinkling wagons cart the water to the camps and about the streets,



Photo by Estey

An Early Business Sign

whence it was drawn off into the wash boilers and saucepans and pitchers of the thirsty people.

The gas and electric companies that had supplied power and light and heat to the city were quick to repair the damage to their properties. But there was great risk that new fires might be started in houses where pipes and wires had been damaged. A thorough inspection had to be made before the service could be resumed, and in the meantime candles went to premium prices.

From the very beginning fires in stoves were prohibited. Hardly a chimney in the city had escaped some damage, and with water scarce and the Fire Department crippled, it was not a time to tempt the "imps of the perverse." It was decided to make a careful inspection of all chimneys, and until it should be seen that all damage had been repaired and all flues were in perfect order, all cooking should be done in the streets. It was necessary to place windbreaks around the curbstone fireplaces to prevent the wind from scattering sparks. And so it came about that pretentious cookeries, with every show of convenience, lined the streets. Many kitchen stoves were disconnected and set up in the streets. Everywhere bricks from the fallen chimneys were piled into crude fireplaces, across which oven grates or sheets of iron were placed. Often an inverted sink was used with a stove-pipe rising from the trap. Real, substantial meals were prepared—meals to which any man would hurry home. This phase of the new life remained for several weeks, as the unusual demand for masons made the repairing of chimneys very slow.

The city at large was possessed with a cheery spirit of hopefulness. Men met on the street and congratulated each other that it was no worse. Even amid the inconveniences of cooking in the street and living in a tent, the people showed a brave humor. A sign on a tent in one of the camps bore the legend, "The Whole Dam Family." Another bid the curious to "Ring the Bell for Land-ady." Still others announced that "Cars stop Here," and that the "Elevator is not Running." Some of the kitchens were jokingly called after the city's most pretentious restaurants—Tait's, Techau's, Zinand's. Others bore fantastic names—the "Outside Inn," the "Inside Out," the "Step Inn," the "Goodfellows' Grotto." One, not much larger than a dog kennel, displayed the crudely lettered sign, "Un-Fairmont Hotel. Open all night. Will exchange for country property." Another bore the



Photo by Waters.

Removal of Debris

motto, "Eat, drink, and be merry, for tomorrow we may have to go to Oakland." "Cheer up," said still another; "Have one on me. Come in and spend a quiet evening."

Even the ruins were made to play their part in the fun. A firm which had occupied salesrooms on the ground floor of one of the large buildings, announced that it had moved because the elevator was not running; and another, "because of alterations in the building on the eighteenth of April."

Despite the holidays, the County Clerk was compelled to open his office. An army of matrimonial aspirants besieged him. Recreants and procrastinators had arrived at a sudden determination that it was the best time of all to take the final step. Boys and girls who had only half made up their minds before, suddenly realized how necessary they were to each other. The first license was issued only one day after the earthquake. In the next ten days two hundred and twenty were issued.

The newspapers, which had lost about everything they possessed, moved temporarily across the bay, and issued from the presses of the Oakland papers. Upon their return they housed themselves as best they could; the Bulletin in a shed on the roof of a cold storage plant; the Chronicle and Call in hastily refitted offices in their former quarters; the Examiner in a one-story shack on Folsom street near the water-front.

Theatres were among the first pleasure places to show signs of returning life. The Orpheum had a matinee at the Chutes the week following the earthquake. The Central and others opened in

tents. The first building permit issued after the fire was for a new theatre—the Davis. The restaurants were soon displaying the old familiar signs in unfamiliar places. The clubs quickly rehoused themselves in private residences.

Fillmore street, which had been seized upon as the first business thoroughfare, soon became the center of operations; soon showed evidences of the pluck and indomitable purpose of the risen city. It achieved a temporary importance because the Relief Committee and various branches of the city government found quarters there. Other reasons made it available for business purposes. It had the one undamaged car line—a line between the Mission and the Western Addition, the two unburned districts. Then, too, it was already a business street in a small and unassuming way; and it also happened that there were more vacant lots of large size there than anywhere else, as a great deal of the land around had been owned by one man who had



Photo by Estey

Removing Debris from Street

believed more in holding property than in improving it.

The vacant lots were cleared and graded, and the foundations laid of buildings in which merchants who had grown old in the city of the past were to make a fresh start in the city to be. Old buildings were raised and stores built underneath.

Among the wholesalers, it was decided that they should gather on the vacant land near the railroad, in the level district south of Townsend street. This was at first intended as a temporary measure to avoid clearing away the mass of wreckage in the old district; but as time went on it came to be looked on as a permanent change. The heavy expense of drayage had been a great handicap in the old location north of Market street (which had grown up when everything came by steamer) and this was entirely dispensed with in the new place. By July the wholesalers were shipping 250 carloads of produce daily to interior and coast customers.

Hayes Valley sprung into a little city almost over night. There were no hills to contend with, the streets were well paved, and it had two car lines which, however, did not resume operations for some months. Everything there invited business.

Van Ness avenue, with its great width, bare of all buildings on one side, and with those on the other blistered almost beyond recognition, offered a splendid opportunity to retail business. The beautiful avenue, which had been at one time the place of fashionable residences, only to give way to equally fashionable boarding houses and apartments, had at last sunk (or risen) to the fashionable



by Aiken

Rebuilding Activity

shopping street. The Saturday afternoon "parade" on Market and Kearny had its resurrection after the fire on Van Ness, so thorough was the change by which this fashionable avenue had been given over to the vanities of life. In its entire length the only landmark that remained unchanged during the metamorphosis was St. Mary's Cathedral, strangely out of place in its new surroundings.

Property values along all the favored streets took a fabulous leap. Substantial fortunes were made by the juggling of ground leases, and by the erection of stores to be leased at exorbitant rentals to anxious retailers.

Hardly a month had passed before there were twenty-five thousand men employed in the building trades alone. In less than two months nearly a thousand building permits had been issued by the Board of Public Works. And in addition over two thousand temporary structures had been erected. By the middle of June eight firms were employing a thousand clerks. Some firms had the courage to return to their former sites, while the ruins were still hot, and start over again in shacks built of scraps of cans and corrugated iron pulled from the debris.

The removal of debris in the burned districts was at first badly handicapped by the lack of facilities. But one at a time donkey engines began to puff in the streets; standing walls began to disappear, and tangled steel and iron came to be straightened out. Bunkers were built and spur tracks laid. As early as July a hundred cars of debris were moved daily. An army of men from the

camp was soon at work among the ruins, clearing bricks (which had a value in rebuilding, if unbroken) and piling them up in neat stacks; loading wagons en route to the bunkers; tearing down with pick and crowbar the stumps of walls; breaking up with heavy sledges fallen and useless cast-iron columns.

Hotels early announced their intention of opening in temporary quarters. The St. Francis erected a one-story shelter in Union Square — a building almost classic in its simple, rambling design. Hammers were soon ringing upon the frame of a new Palace on Leavenworth and Post. A hotel on the west side of Van Ness avenue, unburned but badly damaged, was soon refitted and opened. Quickly-made changes converted popular apartments into much needed hostelryes.

The clearing away of the debris and the opening of badly littered streets in the burned district



Photo by Waters

Reconstruction Work in Burned District

began to bear fruit. The banks built sheds over their vaults and reopened on their old sites. Business houses followed the example of their more impetuous brethren in the corrugated iron shacks, and moved back to their old location. Repairs were started upon the "fireproof" buildings; within three months eighteen were occupied in part, and thirty-five others were being rehabilitated. At that time there were also under construction sixty-six permanent buildings.

Building of this class was retarded, however, as no one could be sure where the new fire limits would be established, or what the new building ordinances would be; and a further delay was caused by a general inability to adjust fire losses with the insurance companies or to obtain any idea of the course they would pursue.

The task of settling these losses was one of monumental proportions. The estimated risks on San Francisco properties of the various companies was, in round figures, \$235,000,000; their total capital and surplus, including the foreign assets of some companies, only about \$270,000,000. In some cases the losses were from six to ten times the entire assets of the company involved.

In some way and upon some basis these losses had to be met. They seemed to mean ruin to many companies. As the basis of settlement was a cause of wrangling and haggling and almost interminable delay, no one knew how much he could expect to receive. Finally the lines began to be drawn. About a third of the companies acknowledged their full indebtedness and paid the adjusted loss in every

case. Others made various offers to their policy-holders, some as low as 33 1-3 per cent., some 50 per cent., and ranging from there up to 75 per cent., in rare instances even 90 per cent.

Some of the companies were simply unable to make payment in full and did what they could. Others, whether able to pay or not, flatly repudiated all responsibility by leaving the State and carrying on negotiations with all the impudence which is available to a debtor in a foreign country six thousand miles away. A few American companies, unable to do this, promptly entangled themselves in litigation, and so tied up their funds with sufficient red tape as to make access to them very difficult. Some of the companies, too, had in their policies various forms of provisions exempting them from liability for losses caused by earthquake, and took refuge behind the question as to whether this cov-



Photo by Aitken

Repairs on Merchants' Exchange Building

ered damage caused by fire indirectly brought about by earthquake, and so effected compromises of various sorts with their policy-holders.

Many unkind things were said of the companies, many harsh names applied to them—"six-bitters," "welchers," and the like. But in all fairness to both sides it must be confessed that no man can look such astounding losses in the face **without** trembling. Perhaps the example of San Francisco will give rise to a mode of operation in the future which will make sufficient allowance for all possible contingencies—even the destruction of an entire city. For years the companies operating in San Francisco had feared such a calamity, but they had gambled upon its uncertainty, and some of them had recklessly involved themselves in risks far beyond their ability to pay.

Gradually a settlement was effected in the great majority of cases (although numerous suits against certain companies will probably drag themselves through years of court procedure) and land holders began to take steps toward rebuilding.

The new building ordinance, which was passed early in June, specified the requirements for the various classes of buildings. Another ordinance was passed fixing the new fire limits so as to include almost all of the burned district.

These two measures had been watched for by men eager to rebuild, and after their passage the reconstruction of the city went forward at a rapid pace; not strictly upon the old lines, but more in the way of a mining town which suddenly wakes to find itself important. Wooden buildings of from



Photos by Waters and Derlett

Temporary Business Houses

TWO VIEWS OF VAN NESS AVENUE
VIEW ON FILLMORE STREET

BANK RE-ESTABLISHED IN BURNER
BUILDING

one to four stories clustered around the frames and shells of the former great office buildings (already under repairs) and here and there appeared the growing skeletons of new steel, stone, and brick structures — the work of the new city. The foundations of new and greater skyscrapers appeared. Many brick buildings reared their splendid walls high above the ruins around. Building operations involving an expenditure of over twenty-five millions, were under way. The streets were crowded with wagons hauling great loads of lumber. Orders for whole trainloads of steel were placed with the manufactories. Carloads of cement were used daily. ~~X~~ Six months after the fire, six thousand buildings, which covered half the burned area, had been erected. A new city was rising from the ruins, gradually, with much labor.

X

THE DAMAGE BY THE EARTHQUAKE

The damage caused by the earthquake has been much exaggerated. Then, too, much has been blamed upon the earthquake for which it was not really responsible. The truth is that in the damage to its buildings San Francisco merely paid the price of carelessness in construction—of placing heavy structures on loosely filled soil and of erecting buildings that were woefully weak in design or shamefully poor in construction.

Doubtless many people have thought that a very large proportion of the buildings in San Francisco were injured or destroyed by the shock of the earthquake, and that the sinking of the streets and breakage of water pipes was general throughout the city. In truth only a small proportion of the buildings were damaged. Photographs taken during the fire show blocks and blocks of brick structures practically uninjured; and frame structures were damaged very little except some tumble-down affairs, and some on filled land or on insufficient or wobbly foundations. The sinking and shifting of streets was confined to "filled in" areas; so was most of the damage to buildings.

The parts of the city that were built on the rocky formations of the hills were very little damaged. The lower portions—valleys of softer soil, and regions where deep sand dunes covered the underlying rocks—were somewhat more severely shaken. On the filled land the vibrations were much

greater. There such slight damage as the throwing down of cornices and gable-ends was common, and in some places streets and buildings sank somewhat.

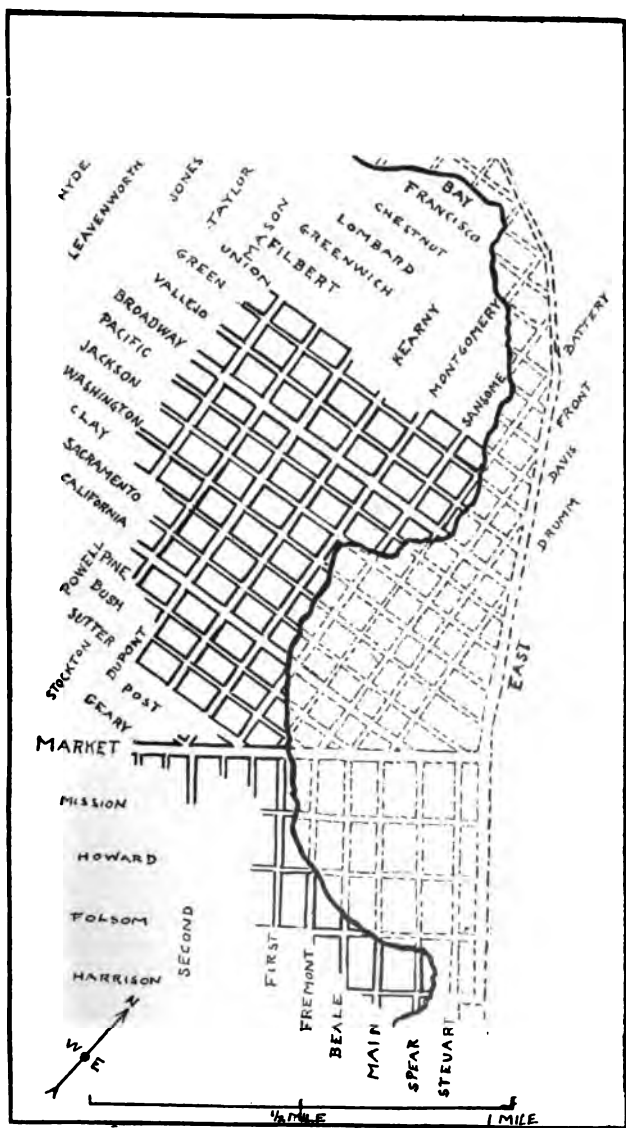
The present generation has almost forgotten what was well known to its predecessors: that much of San Francisco's downtown district had been built on filled-in tide-flats and marshes. The manner in which it had been filled in they did not realize at all.

The old maps of the city show plainly enough that in the early days the water came up close to the hills. The inlet at Yerba Buena Cove, around which the first settlement had sprung up, extended from the base of Telegraph Hill on the north (at Jackson and Montgomery) to the foot of Rincon Hill on the south (at Folsom below Fremont) almost in a direct line. South of Market, everything east of Fremont street is "made land"; California, east of Battery, and Clay, east of Sansome, were, similarly, under water. The upper view in the group entitled "Early San Francisco," shows this inlet as seen from Rincon Hill, with Telegraph Hill in the center distance; a view of the same scene taken a



Hecht Collection

Buildings Damaged by Earthquake in 1868



Map Showing San Francisco in 1849

Dotted Lines Show Present Streets beyond Old Ship Line

year ago would have shown heavy brick buildings as far out as the main line of ships at the right.

The picture at the bottom of the same page shows the upper portion of the same inlet. The beach in the center of the picture is Montgomery street; the two streets running up the hill are Clay and Washington respectively; they are so marked in the original engraving, which was made in 1849.

Southward, between Rincon Hill and the Potrero Hills, a similar inlet extended as far west as the lower end of Eighth street. Even now Channel street is a waterway as far as Seventh. Beyond this inlet one arm of a salt marsh stretched as far as the present site of the Postoffice, at Seventh and Mission.

By 1850 San Francisco began to grow out over Yerba Buena Cove. Wharves projected out on the street lines; stores and shacks sprung up beside them. A thousand people lived in houses on stilts over the water. Gradually the cross-streets were planked, and the whole district filled in with waste and trash, packing cases, garbage, and soft materials of all sorts, and a thin coating of sand and dirt sprinkled on the top. All this mass rested on no more substantial stuff than soft mud. As the years went on heavy buildings were erected. In a few instances buildings rested on piles driven through the fill and mud. The earthquake of 1868 caused considerable damage to some of the buildings in this district.

The region became the greater city's wholesale district, and was gradually covered with substantial buildings. The land had never stopped sink-

THE DAMAGE BY THE EARTHQUAKE 197

ing. The weight of the buildings had slowly compressed the soft filling; each new building erected on the official grade stood for a time above its neighbors.

In this part of the city the earthquake caused some settling of streets and buildings. In general it was a matter of a few inches only; in extreme cases two or three feet. The streets settled more than the buildings because the soil under them had remained loose. Market street sunk about four inches for a distance of several hundred feet. East street, in front of the Ferry Building, sank three feet in one spot twenty feet across; Davis street, near Vallejo, sank three feet. These were the extreme instances.

The general subsidence through this district naturally canted and strained and cracked some of the buildings, and a few small wooden structures on rickety foundations were shaken down by the violence of the vibrations that ran through the loose soil. But serious damage was by no means general even here, and buildings properly constructed on good foundations were uninjured. The Appraisers' Building, resting on a solid slab of concrete, does not show a crack as a result of either the earthquake of 1868 or that of 1906, although it has gradually gone down eleven inches more at one end than at the other since it was built. The Ferry Building, resting on a similarly good foundation, was almost undamaged, in spite of the subsidence of the adjacent region.

So with the so-called Commissary Building at Market and Spear, a block away. The street sank

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some three feet here, but the damage to the building was almost entirely by fire.

A similar subsidence occurred in the filled-in district that had been Mission Bay and its surrounding marsh, and which had been brought up to the grade with sand loosely thrown in. Mission street, near the Postoffice (at the corner of Seventh), sank three and one-half feet.

The same disturbance can be traced diagonally through the nearby blocks—at Sixth and Howard, and at Fifth and Folsom, and at Fourth and Harrison—along the edge of the old marsh.

Through here were the most striking cases of the complete wrecking of flimsy frame houses, which tottered on their crazy foundations and collapsed. Better-built structures—frame or other—held together even when the soft loose soil moved and twisted and formed itself permanently into “earthquake waves.”

A third “disturbed region” was in the neighborhood of the Valencia Street Hotel. From about



Photo by Derleth
Subsidence of Streets at Market and Spear

Nineteenth and Guerrero to Seventeenth and Howard the steep-sided ravine in which Willow Creek ran had been filled with loose earth; further along was the marsh about the head of Mission Inlet. The Youths' Directory, the Valencia Street Hotel, the much-pictured houses on Howard street, the broken sidewalk on Capp street, and the cracked pavement of Eighteenth street, are all in this area.

The one other place in San Francisco where the earthquake resulted in a general movement of houses and streets was at Vallejo street and Van Ness avenue, and here too, a fill was to blame; for in early days loose earth had been thrown in to fill in the course of a creek that ran in a deep ravine toward the Presidio. Here, however, the buildings were of a better class, and, while more or less tilted, held together and were but little damaged.

It was only on these filled areas that damage to streets, or to houses generally, resulted. In other parts of the city only isolated buildings were injured—usually for more or less obvious reasons.

As nine-tenths of San Francisco is built on the solid ground of its many hills, and only slight damage was suffered there, it will be seen that the few



Earthquake Waves Near Foot of Ninth Street

special cases where local conditions resulted in severe damage have made the earthquake seem much more terrible than it was in reality.

If the filled-in regions had been properly filled—if the houses on them had been properly built—the damage done to San Francisco by the earthquake would have been slight indeed. It was unreasonable to expect such loosely filled land to hold up under a severe shaking. Now that it has been solidified it is not at all likely that a similar earthquake would do any serious damage.

Closely related to the question of subsidence throughout a district is that of the failure of the foundations of individual buildings. This, however, was mainly the result of poor designing and poor construction. Many old wooden buildings had been built on wooden foundations which had almost rotted away. Others, stronger, had almost nothing to brace them against side strains, and so slid over sidewise down on the ground. In still other cases the foundations themselves were all right but unfortunately the superstructures were not securely fastened to them and were jounced off by the shock. Throughout the city, houses moved a few inches on their foundations—and had to be pulled back at considerable expense—merely because they were held to them only by a few nails.

A few houses, too, through the weakness of their frame work—lack of bracing and general lightness of material—bulged far to one side, their walls cracking at the level of the second floor. The picture on page 25 shows two such cases.

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Everywhere in the city the interior plastering of houses was badly cracked by the shock. Such cracking of plaster, indeed, came to be looked on as a necessary result of the earthquake, so general was it. But the fact that very many houses that were better built did not sustain even this damage shows clearly that a great deal of it was due only to a lack of rigidity in the houses that were so shaken. An interesting fact in this connection is that, throughout the city, leaded glass door-transoms and panels were bent far out of position, although ordinary windows were uninjured.

In general, however, the damage to frame structures was trivial. Apart from cases of unusual weakness, and insufficient or wobbly foundations, the wooden houses of the city sustained almost no serious injury, except where it resulted from poor foundations. In the whole Mission and Western



Photos by

Cracking in Stonework of Postoffice and Flood I

Addition—the unburned parts of the city—there is hardly a house that is not structurally sound.

Among brick buildings, however, damage was more general. To a great extent this also is due to poor designing and poor construction; the only essential difference seems to be that poor work in brick is more dangerous than poor work in wood. But good work of both kinds was equally unharmed.

The fate of brick chimneys in all parts of the city is typical of the effect of the shock on brickwork in general. Where they were built within the houses and supported by the frames they were unharmed; but in almost every case the throw of the temblor snapped off the unbraced part above. Many, on flat roofs, moved over or swung around so that the fire left them standing very decidedly “off center.” In general those which were braced by rods connecting them with the roof did not fall, or broke above the brace; others held together merely because of the superior material in them. Outside chimneys usually fell away as a whole; but some split, the outer portion dropping while the grates remained in place. So with brick walls in general; the unbraced portions above roof-lines fell, and walls which were built well, and as parts of a well-unified building, stood.

The most striking effect on brick buildings was the falling out of parapet walls and the tops of front walls. The former—rising several feet above the roof-line as a protection from fires in adjacent buildings—were almost invariably unbraced; many of them were snapped off, in whole or in part, just as the great majority of chimneys were, while others

remained. In the case of front walls the conditions were somewhat different. Where the roof rested upon the front wall, as where it was carried out as a cornice, damage was very infrequent. But in many cases square cornices concealed pointed roofs; in very many cases such cornices were thrown down, exposing the whole opening of the gable; and often the façade of the whole upper story went down as well. The chief reason for such results, apparently, was the battering of the inside of the building against the end walls, as it swayed on the supporting columns. Such swaying, of course, indicates poor design, by which the building is entirely lacking in unity of construction, the various members not being properly tied together.

This absence of proper tying of the walls to the interior construction was the cause of two striking effects in different buildings. In a few old buildings the swaying of the walls allowed the roof trusses and floor beams to pull out of the sockets in which they rested, and the whole interior to telescope into the basement. In other cases, the swaying of the heavily loaded floors knocked out the side walls, as in the case of the storage warehouse mentioned in an earlier chapter. The simplest precaution—the use of the so-called “earthquake rods”—would have avoided all of this; the damage so caused should not be attributed to the earthquake at all, but simply to poor designing. Buildings with steel girders suffered much less than those with only wooden joists, probably because the steel was fastened more securely; and the stiffening afforded by

concrete floors seems to have protected other brick structures from even slight cracking.

! Perhaps the most striking example of the destruction of brickwork is found in the case of the City Hall. Certainly the pictures of the ruins might seem to indicate that the earthquake was a destructive force of tremendous power, but the impression so conveyed is a false one. Indeed, only half of the building suffered any serious damage at all—the dome and the Larkin street wing. Apart from the question of graft and poor construction (the damaged and the undamaged portions were built by different administrations) the reasons for the downfall of the building can almost be seen at a glance. The tall framework of the dome, rising straight and sheer and almost unbraced, within the surrounding brickwork, almost proclaims in itself how its swaying back and forth knocked down the latter, just as the swaying of the dome on the Stanford University Gymnasium wrecked that edifice. The City Hall dome, broad-based and sturdy in appearance, was but a sham. Its tremendously heavy brick walls and



Photos by Aitken

Chimney Tops Shifted by Earthquake

concrete columns supported nothing, and braced nothing; the slender frame derived no strength from them in any way. On the Larkin street wing the same story may be read; massive brick walls and monumental concrete columns—uselessly huge, shamefully top-heavy—are tied together at the roof by only the flimsiest and most trivial trusses; it is small wonder that when the earthquake set them swaying they broke away and fell.

[In much of the damage to brickwork in San Francisco poor workmanship and poor materials were only too apparent. Falling brick fell apart as they struck the ground; the mortar, dry and crumbly, had clearly been of the poorest quality. In many buildings, where zigzag cracks appeared between bricks, the mortar only too plainly had no cohesive power at all. In others, and everywhere in house foundations, the falling out of the facing brick showed that there was no bond between the front and the back parts of the wall. To a great extent the use of mortar mixed with lime alone, or with very little cement, was to blame for the damage that was done to brickwork by the temblor.

In connection with the destruction of the three large brick buildings in the neighborhood of St. Dominic's—the synagogue, the commandery hall, and the memorial temple—it should be noted that each of the buildings was so new that it had hardly had time to dry out and become solid. One of them was a year old, the others hardly completed. The disturbance in the neighborhood, too, seems to have been unusually severe, perhaps from its position at the edge of the hills.

7 The destruction of St. Dominic's Church, too, it should be said, was one of the anomalies of the earthquake. It was massive in design and honest in construction. The bricks were of good quality and well laid in cement mortar. They fell in great pieces weighing tons, which hung together even though they cut into the pavement; and the cracks in the walls ran down through mortar and bricks alike. It seems that the heavy roof, which was supported on wooden trusses that had become weak through dry rot, dropped and spread, and so forced out the walls. The fate of the structure is an unfortunate example of the possibilities of one source of weakness; and even this would have been avoided by the use of "earthquake rods." At the Chapel at Stanford the spire fell in the same way; but the walls, steel-braced, suffered no injury, except the blowing out of the gable-ends by the rush of air.

A splendid illustration of the fact that even the most vicious shaking has slight terrors for a well-built building is the Youths' Directory, a four-story structure, at Nineteenth and Guerrero, a block from the Valencia Hotel. It was just on the edge of the fill; the front part of the building moved several inches further than the rear portion; it sank several feet. As a result the side walls were split apart by a crack that is six inches wide at the first floor, and very small at the cornice. There is hardly another crack in the whole building, although the cross wall in the center was actually curved several inches out of alignment by the unequal movement of the soil below.

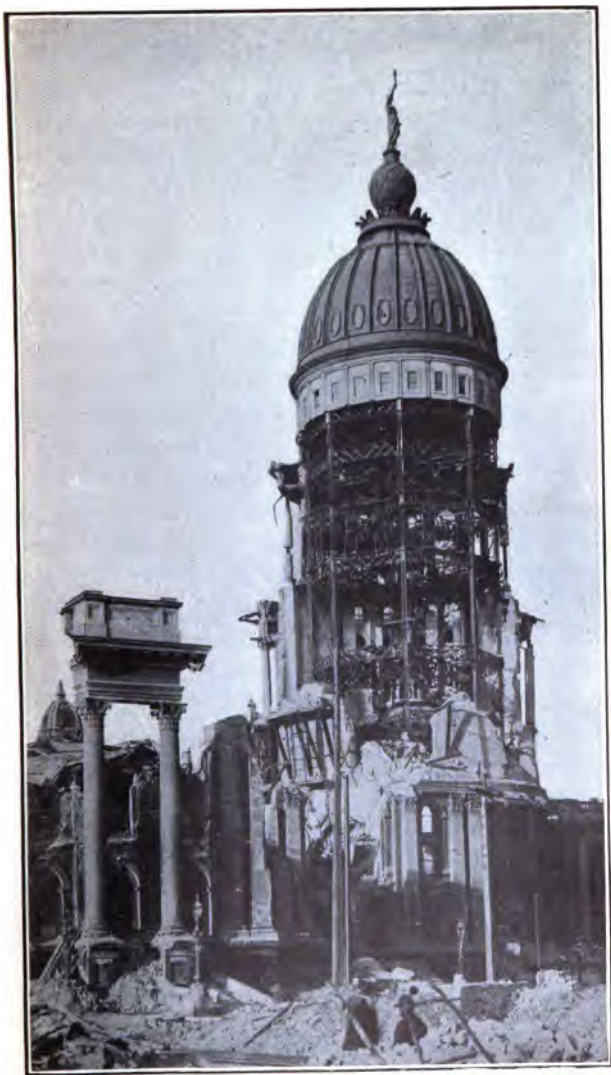


Photo by Waters

City Hall

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So it was with the older buildings—those erected in the early days. Doubtless many would still be standing if the fire had not weakened their walls so that they fell, or if they had not been blown down by dynamiters; but a sufficient number of churches (which, being relatively unfurnished, perhaps did not burn so fiercely) remain to show how little damage was done to well constructed brick-work.

St. Francis Church, at Vallejo street and Montgomery avenue, has hardly a perceptible crack anywhere; erected in 1859, it is the oldest church in San Francisco, except the Mission Dolores, and one of the city's oldest buildings of any sort. The Temple Emanuel, on Sutter street, was erected during the sixties; its walls and its lofty minaret-like towers, fragile though they seem, are in perfect condition. So is the tall spire of Grace Church, and its many-arched walls. Old St. Mary's Church and the new St. Mary's Cathedral (which was not burned) were alike unharmed by the earthquake.



Photo by Derleth
Concrete Block House at Palo Alto

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Various old buildings tell the same story of good construction. The old Wells Fargo Building at California and Montgomery—built of Chinese granite by Chinese masons, in 1852—is as staunch as ever. So is the Montgomery Block, built in 1853, by General Halleck; so is the Appraisers' Building, built under government supervision. The walls of the Palace Hotel, too, commenced in 1868, are as solid as ever, and as solid as any walls could be. They are a splendid example of good construction. The numerous partition walls—all brick—brace it thoroughly, and "earthquake rods" run all through it. It was the builder's boast that it could be pulled up but not pulled down; its razing is costing \$80,000.

Of the effect of the earthquake on the modern steel frame buildings little need be said; the damage to them was trivial. The skyscrapers, so much mis-

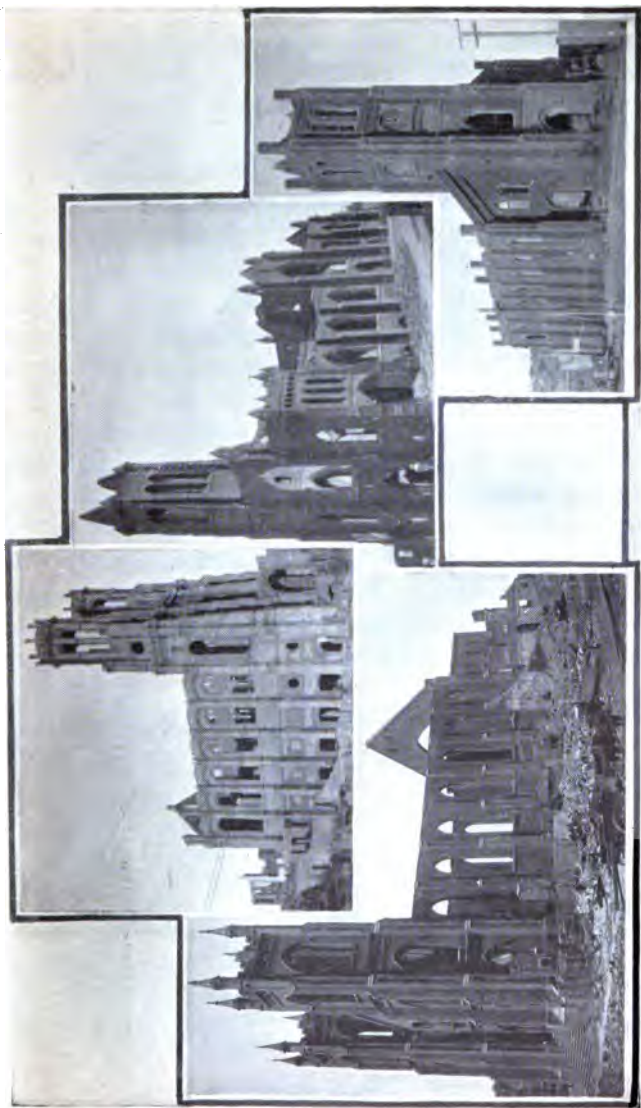


Photos by Aitken

trusted, were scarcely injured. Here and there some plaster was knocked down, or some of the stone facing cracked; but substantial injury there was none. Perhaps the most severely tried structures were the Ferry Building, situated at the extreme edge of the "made land," and the Postoffice, at the edge of a subsidence. The tall tower of the former swayed sufficiently to crack much of the facing stone, and some, near the base, fell out; and there are a few cracks in the front of the building and in the stone pillars of its colonnade. Yet it might well have been expected that such a shock would break the long narrow building apart, or throw down its tower.

In the vicinity of the Postoffice, the ground was badly disturbed, along the course of an old creek bed and marshy inlet. The Postoffice Building, very heavily constructed of steel and granite, was the subject of much comment when in course of construction, because of the choice of an old lagoon as a site. But although the street sunk several feet, the building's foundations supported their tremendous load without any settling whatever. The swaying of the building during the shake, however, cracked it in several places, loosened several of the stones, and split much of the interior marble, besides loosening some of the wall tiles. The dynamiting of nearby buildings, after the fire, caused much greater damage than the earthquake.

The other large buildings—office buildings—sustained damage of much the same sort. The tower-like Call Building of fifteen stories and dome—eighteen altogether—did not show a crack or a



Photos by Derleth and Aitken

Brick Churches Undamaged by Earthquake

loose stone, or, in fact, any visible damage at all. The new uncompleted Chronicle Annex lost a few bricks. The James Flood Building, of tremendously heavy construction, with massive walls of chiseled sandstone, swayed just enough to crack some of the stonework in its corner columns, and to shake down plaster here and there inside. The other great buildings—the St. Francis Hotel, the Mutual Bank, the Crocker, the Union Trust, Mills, and Merchants' Exchange Buildings, and many more, showed almost no trace of damage, their swaying steel frames guarding them against any sudden shock. The old Chronicle Building, erected in 1892, as San Francisco's first skyscraper (while its tower stood it had twelve stories) showed scarcely a crack or scratch; in one place some bricks bulged out a few inches.

Of reinforced concrete construction there was almost none in San Francisco. What there was—interior construction alone—was uninjured, and held together the brick walls around it. The Academy



Palace Hotel

Photo by Weidner

of Sciences Building—with reenforced concrete galleries around an open space, furnishes a striking instance. The Museum at Stanford furnishes another. Part of it was of concrete; but in order to finish it for the opening of the University, part of it was built of brick. The earthquake wrecked the brick part; the concrete stood.

Summing up the whole question of the destructive effect of the earthquake, it may be said that the shock caused loosely filled ground to slide and sink; that no frame buildings were damaged by it except the very poorly built ones, which it wrecked; that brick structures were more or less damaged, about in proportion to their poorness in design and construction; that steel buildings were scarcely injured at all.

On the whole—although it caused slight damage everywhere—the earthquake caused serious damage hardly anywhere except in old buildings, poor buildings, dishonest buildings. Others were not injured and there need be no fear that any similar earthquake in the future will cause damage to them.

XI

A STUDY OF THE FIRE

After every great conflagration certain questions are of much interest: How did it start? How and why did it spread? How did it affect the "fireproof" buildings?

There is much of interest and of practical importance in the consideration of the San Francisco fire from the standpoint of each of these questions.

The first question which arises here, however, is: How was San Francisco prepared to meet such a calamity? In this connection something of the manner in which the city grew is instructive.

When the adventurers of '49 built their houses and stores and saloons around Yerba Buena Cove, shanties served the purpose of the builders—shacks with rough plank exteriors, and walls lined with painted cotton cloth. The residence section, indeed, was composed largely of mere tents.

Scarcely had the population reached the 5,000 mark (in December, 1849) when a fire broke out which swept away the entire "business district" of the city, entailing a million-dollar loss. The embers were hardly cool when new shacks appeared among the ruins. In five months the whole burned area was rebuilt. Then in May, 1850, a second fire occurred, which again consumed the "business end of town." Again the city began to rebuild, but scarcely a month had passed when another fire came along and burned out the rest of the city.

(After this, the third big fire within six months, people began to build "fireproof" structures; brick gradually supplanted boards and cotton cloth. The city had just about readjusted itself after these fires, and another which burned out two blocks in September, 1850, when the great fire of May, 1851, occurred. This conflagration made but slow progress through that part of the city which had been rebuilt with brick, but in the residence districts, where the houses were wooden and close together, the fire burned furiously. In the hours of the average working day fifteen hundred buildings had burned. The destruction of the city was complete.

Afterward, as the city grew out over the tide-flats and marsh lands, the buildings were nearly all of brick. Down-town San Francisco assumed the



Photo by Aitken

Doorway to Nob Hill Residence

aspect of a city well prepared to withstand the ravages of fires.

In 1868 an earthquake occurred which did considerable damage to these buildings on filled ground; and as a result the people again reverted to wood, forgetting the many fires of a few years before, and fearing the coming of other earthquakes. Slight shocks from time to time in late years kept up the tradition that brick was unsafe. Besides, wood was much cheaper.

The business district had to be fireproof, and was built of three- and four-story brick structures; but beyond, on the hills, and in the valleys between, thousands of frame residences were erected. Upon the whole, the city was very free from fires. Perhaps it was because redwood does not ignite so easily as pine or burn so fiercely, and because a redwood fire



Photo by Aitken

Entrance to the Huntington Mansion

is more easily put out with water than a pine fire. But the danger of a great conflagration, as complete in its destruction as that in May, 1851—if one should start during a heavy wind, for instance,—was always present.

Gradually the fear of earthquakes died out. In 1892, the slender Chronicle Building, of twelve stories including its tower, was built around a steel and iron frame. Temblors continued to come, but after each it stood unharmed. Other tall buildings were erected. Finally the Call Building was constructed—a narrow, tower-like structure of eighteen stories (counting those in the dome) reaching a height of over three hundred feet. In recent years a great deal of the most modern type and style of construction had been done; the youngest of the great cities had already begun to replace its old buildings with new. In ten years more the business district would have been practically rebuilt. In the



Photo by Weidner

On the Edge of the Burned District

early part of 1906 but two per cent. of the city's buildings were fireproof. When the disaster of April 18, 1906, came it found much of the old city awaiting it.

A search for the actual causes of the starting of the many fires that arose after the earthquake takes us back to the underlying facts of filled land and poor construction. Those, we have seen, were the main causes of the throwing down of both brick and frame structures by the temblor. And among the fires that at once arose the fiercest were those that started in the fallen hotels and collapsed shacks "south of Market," and those that sprang up on the filled land near the ferry. Fallen electric wires had a part in some of the fires; but in parts of the city where houses were not shaken down they did little damage.

Whatever the real cause of the outbreak of the fires, their spread certainly resulted from the number



"Fireproof" Safes

Photo by Aitken

of them that had sprung up, among unsubstantial wooden structures, in the area of made land and poor construction. The fire got its start in flimsy old wooden buildings, that should have been cleared away long ago. For years the Fire Department had been fighting fires there, always with the fear of a conflagration, but always with success—for then it had water and could concentrate itself against one foe. But when dozens of fires burst out at once on April 18 conditions were different. In other parts of the city—in the Mission and Western Addition, for instance—a scant supply of water from mains and sewers sufficed to put out the fires; but along the water-front they became uncontrollable, although the inexhaustible waters of the bay were at hand.

There the rookeries in which the fires started became huge kindling piles for the large buildings nearby. Mission street, from Fremont to Fourth, was built up of fine new buildings, mostly of brick with wooden interiors; the wholesale district was full of similar structures of an earlier date but equal sturdiness. Such, however, were little better than



Photo by Aitken

Unburned Block on Upper Montgomery Street

wooden ones when once the fire gained headway among them. It was in buildings of this sort that the fire north of Market street raged all the first day; and they, in turn, created a general conflagration which even the "fireproof" structures could not withstand. Finally, when the fire reached the frame districts beyond Chinatown and in the Mission, its course was most rapid and its extent so vast that nothing could stop it, except the great width of a boulevard.

The width of the streets over which the fire jumped is of interest. South of Market, the streets were eighty feet wide, but there the fires raged all around, and almost in every block. Then, too, the great size of each block (825 x 550 feet) made the fire in each a conflagration in itself. In the wholesale district the fire made slow progress across



Photo by Aitken
Ruins of Six-Story Brick Building



Photo by Waters

Interior Steel Framework After the Fire

streets sixty-eight feet nine inches in width, which were lined with brick buildings on each side; in the wooden residence districts, however, the flames spread quickly across streets of similar width. While the great width of Van Ness avenue (120 feet) proved effectual in stopping the westward advance of the flames on the second day of the fire, it had not been sufficient to prevent the Hayes Valley fire from crossing it the day before, when a favorable breeze happened to be blowing.

Most conflagrations seem to be due to heavy winds, and the quick leaping of the flames from house to house and block to block. Yet San Francisco burned in a calm, varied only by light breezes that blew from time to time. The progress of the flames, therefore, was slow, steady and deliberate rather than fitful and capricious. They advanced from block to block simply by the ignition of the one



Photo by Aitken

Front Wall of Iroquois Apartment House



Photos by Aithen

Effect of Fire on Exterior Materials

by the heat of the other across the street, without any actual contact of flame,—except in the spreading of the Hayes Valley fire by flying embers. It was this that made the long struggle so heartbreaking, hope, renewed at each street, giving way each time to the bitterness of defeat and to a new hope of success at the next.

Just as the Chicago fire of 1871 is said to have been brought about mainly by the prevalence of a gale, so the San Francisco fire is popularly declared to have resulted from the breaking of the water mains. But in the light of post-fire investigations it seems more and more plain that this was not really the main factor in the early spread of the conflagration.

Probably no single agent had so much to do with making this the greatest conflagration of modern times as did the breaking out of so many simultaneous fires, distant from each other, in the first moments following the earthquake. It was this that scattered the Fire Department in a battle against many foes, and allowed the conflagration to get its start. Afterward, of course, the absence of sufficient water was fatal. Some water there was; it was used with good effect.

Six cisterns containing 169,000 gallons were emptied during the fight on the first day. This was used not only directly upon the fire, but also in the boilers of several engines pumping salt water from the bay. On Thursday four cisterns containing 84,700 gallons were emptied. A great deal of salt water was used throughout the entire burning of the city. In addition, a few hydrants here and there

continued to supply water from the reservoirs within the city, and in the lowlying districts much water was taken from sewers. So long as the fire was not too far to be reached by hose lines from the bay, it was impossible that the water supply should run out.

Where the cisterns and the bay water could be used, the fire was for a time stopped or turned aside. If there had been more cisterns, much more effective work could have been done. There were in the city twenty cisterns which could be used during the fire. In years past there had been more; they had been kept filled, and had been of much service. Gradually, however, they came to be neglected; some cracked and were not repaired; some were filled with earth by corporations eager to run pipes or conduits through them. Similar indifference and shortsightedness left the wholesale district without protection



Column Protection in Wells Fargo Building

Photo by Aitken

which it might well have had. If the city had made the mechanical arrangements necessary for the use of the pumping plant which a cold storage company had offered to turn over to the Fire Department whenever a fire in the district occurred, it is almost certain that the fires north of Market street would have been subdued at the start.

As to the general handling of the fire, it has already been shown how it might have been different if the Chief of the Fire Department had not been stricken down in the first hour of the emergency, if the department had not been split up into such an infinity of small squads combating separate fires, if a full supply of water had remained in the pipes, and if such complete demoralization of everything generic in the city's affairs had not followed the earthquake. After the passage of six months it is now possible to see how, even against these heavy handicaps, certain results might have been obtained



Columns of Fuller Warehouse

Photo by Waters

which would have been effective in the saving of much property.

On the first day of the fire, during the burning of the wholesale district, much real damage was done by blowing up buildings adjacent to those already burning. It would seem that if the dynamiting had been done at a distance from the fire (perhaps at the other end of the block) and back-fires started, the conflagration there—which burned very slowly among the substantial and more or less fireproof buildings—might have been confined to a comparatively small area. Probably a natural hesitation about destroying valuable property which might otherwise be saved (emphasized by vehement protests from the owners) was partly to blame; perhaps it would have been done without question, if the Chief had been there, while in the general disorganization of the department no one may have been willing to take the responsibility. It must be



Photo by Waters
Reinforced Concrete Girder in Monadnock Building

noted, however, that any general scheme of blowing up a wide zone of buildings, and back-firing, would have required more powder than was at hand at any one time. Here, too, perhaps, civic shortsightedness is to blame; for an offer by the Federal Government, to keep large quantities of high explosives on its reservations, and available for the city's use in case of fire, had been neglected, and no advantage taken of it. The value of back-firing was splendidly illustrated on Thursday afternoon when the westward course of the flames was checked at Van Ness avenue.

Unquestionably the assistance rendered by the soldiers was of great value in preserving order and preventing loss of life in the burning districts and in giving the firemen a chance to work unmolested. But in carrying out their instructions to allow no one in the burning districts, they did much harm also. Soon after the outbreak of the conflagration fire-lines were established, and the orders to the troops were to keep everybody out. As the fire progressed over wider areas the soldiers were sent in advance to drive the residents away; the fire-lines were continually widening and no one was allowed to return after once leaving. So strict were the soldiers, indeed, that in many cases they prevented citizen volunteers from fighting the flames, even in districts where there were no firemen; wherever a few men were found fighting valiantly to save their homes, they were driven from their work although by remaining they might have succeeded in diverting the fire from several blocks of houses. Among the throngs of watchers, too, were many anxious to

be doing something to help; many, even, who recognized the "psychological moment" when such or such a thing might be done to good effect. All alike, however, were excluded from the fire line, except in certain rare instances where determined men forced their way through the guards.

The success of parties of volunteers in fighting the flames where they were allowed to do so indicates that much good might have been accomplished if everyone had not been driven away. The Mint, the Postoffice and the Appraiser's Building were saved by the timely use of a scant water supply by those who stayed in the buildings; the Palace Hotel held out for hours for the same reason.

Apart from the fire, too, it is unfortunate that these orders were enforced so rigidly that many a family was able to save only what it could snatch up at the time of its eviction. In these cases the fire was almost invariably several blocks off, and



Photo by Waters

**Breaking of Tile and Buckling of Columns in
Aronson Building**

there was plenty of time for the men among those driven out to make a trip to their homes and return with much property of value, and many things that would have added materially to the comfort of all. At the City Hall, too, soldiers for a time prevented the removal of the Recorder's books, and when finally they were prevailed upon to allow this to be done, it was too late to save more than a few hundred of the thousands stored there.

[Were a similar fire to start now, San Francisco would know how to use its engines to pump water from the bay, and how to use dynamite to advantage and fight fire with fire. Indeed, while the city burned the knowledge of how to conquer the flames was acquired. It is no discredit to anyone to say



Photo by Waters

Interior of Union Trust Building

that San Francisco burned because no one knew how to use the resources that were at hand; but it is high praise indeed to point out that in spite of all handicaps the flames were everywhere stopped and nowhere allowed to burn themselves out—that at the water-front, and the freight yards, and on Howard and Dolores, and along Van Ness avenue and Franklin street, and on Russian Hill, the fire was held in check while there was much unburned beyond. The greatest of conflagrations was brought to an end in the midst of combustibles. There is heroism in that.

It has been seen that the absence of water was one of the main reasons for the spread of the con-



Photo by Waters

Interior of Old Chronicle Building

flagration. The possibility of a dependable water supply with which to fight future fires, even in the event of a serious earthquake, is therefore a matter of great interest. It has been generally supposed, perhaps, that the earthquake "shattered the mains" throughout the city, and that another shock might do the same thing again. (But this is far from the truth. Supply pipes crossing marsh land on trestles, outside the city, were thrown down by the shock; another, at the fault line, was torn apart by the shifting there. But apart from the damage done by this shifting and by the sliding at such places as Valencia and Eighteenth streets, the earthquake did practically no damage to pipes buried in the soil. It seems plain, therefore, that by the simple precaution of avoiding the marshy ground, (and suspending loosely any mains that have to be carried across the fault line), any danger of such destruction in the future will be overcome. Indeed, if the lesson of the 1868 earthquake (which also threw down the supply pipes crossing the marsh) had been heeded, and the mains into the city laid in the solid ground of the hillsides, there would have been water in plenty for all of San Francisco's needs. It has taken a bitter experience to inculcate the lesson; but perhaps it is well learned now. Apart from the matter of supply pipes, too, the advantage of having a number of local reservoirs, and pipes connecting with the bay, has been made manifest by the fire; and such reservoirs and pipes, if constructed with even ordinary care, would not be subject to injury by any such earthquake as that of last April. It is perfectly

practicable, therefore—in fact, not at all difficult—to protect San Francisco completely against the loss of its water supply by earthquake.

In passing to the consideration of the effect of the fire on the various buildings of the city, it is interesting first of all to note the evidences of the fierceness of the flames. In many places the basalt blocks of street pavements were cracked and split by the heat of the fire; in some the very rails of the car-tracks are twisted out of shape. The granite coping around the City Hall lawns was scaled off, although there was no fire within a hundred feet; the paint on the Ferry Building and its tower was blistered by fires at least twice as far away. In shops and kitchen closets piles of crockery plates



Photo by Waters

Interior of Emporium

were fused together; glassware flowed into new shapes. The contents of many supposedly fire-proof safes burned, wall vaults went to pieces, and even heavy safes could not withstand the heat of piles of fallen brick. The contents of buried safes burst into flames when opened, even several weeks after the fire. Safes in buildings that did not collapse fared much better; the various banks' safe deposit vaults, too, were unharmed. It is a curious fact that the only combustible left unburned was the fuel oil stored in tanks under the sidewalks in various places in the burned district.

In the whole burned district there were scarce half a dozen places which escaped destruction. It has already been narrated how the fire was turned aside from the Mint, the Postoffice and the Appraiser's Building and how parts of Russian Hill and Telegraph Hill were saved, by the strenuous efforts of a few volunteers who had the assistance of a little water.

The turning aside of the fire at the Appraiser's Building (at the northwest corner of Sansome and Washington) and at the Montgomery Block (at the southeast corner of Montgomery and Washington) saved a block of old structures between Washington and Jackson streets from the first day's fire; by further hard work with a little water in barrels it was saved from the fire that swept back from the west on the third day. On the north side of Jackson street, facing this saved block, one building stands alone in a block otherwise destroyed. This structure, the Volkmann Building, had eighteen-foot alleys on two sides, and a low brick building on



Photos by Waters

Buckled Columns

another; it was of brick, and had wired-glass windows with metal sash, except on the front, which faced the unburned block. To this fortunate combination of circumstances it owes its safety.

An almost similar set of circumstances saved the works of the California Electric Company, on Folsom between Second and Third, which had driveways at each side and a small street behind it, and was equipped with wired-glass windows and metal sash.

The burned district map shows but two other unburned spaces—the Atlas Building of ten stories, at Second and Mission, and the California Casket Company Building of seven stories, on Mission between Fifth and Sixth. The latter was in itself fire-proof—of brick walls and concrete floors—and was in a neighborhood chiefly built up of low frame structures; moreover, it was as yet uncompleted, and contained almost no combustible material except its window frames which, indeed, burned. The former, on the other hand, was in a well-built district and surrounded by buildings that burned fiercely. Its side walls were windowless except in the upper stories. The fire burned a few of the window frames of the elevator shaft, but there was not enough combustible material there to spread the flames. The escape of the ordinary two-story brick building adjoining it at the corner of Second street, indicates that the fate of both was largely due to a freak of the fire, or some fortunate shifting of the flame currents.



Photo by Waters

Buckled Columns in Bullock & Jones Building
(Showing Sagging of Floor Above)

The Kohl Building, at the northeast corner of Montgomery and California streets, is an instance where thorough fire-proofing helped, though here, too, good luck counted. Owing to the peculiar circumstances under which the fire approached the neighborhood, (which are narrated at page 79), the building was subjected to a fire test rather than a conflagration test. The fact that the windows of the upper stories are unbroken shows that they were not subjected to the extreme heat of a surrounding conflagration. The fire entered from the low brick building adjoining on Montgomery street and burned the contents of the second, third, and fourth floors. The floors above were uninjured; doubtless because all the woodwork was metal-sheathed and the elevator shaft was practically cut off from the wings. If the halls had had the usual wooden wainscote rails and wooden doorways the fire would

*Photo by Aitken***General View of Building at First and Mission**

in all probability have spread to the various rooms on each floor and completed the destruction of the whole interior.

The city's other "skyscrapers" were subjected to a more severe test in the form of a wide-spread conflagration nearby. The Claus Spreckels or "Call" Building, however, took fire in much the same way as the Kohl Building—from an adjoining small building. It is possible if the building had not had a great amount of exposed woodwork, the upper stories would have been saved just as those in the Kohl Building were; but on the other hand the Call Building was close to fierce fires on two sides and but little removed from the many that made up the South of Market conflagration.

In general the fire did its work with absolute thoroughness. In the residence districts, for in-



Photos by Aitken

Detail Views of Building at First and Mission

stance, which were almost wholly built of wood, nothing combustible remained; blocks and blocks of houses were represented only by their chimneys and such indestructible litter as window-weights and flat-irons. There were no charred or half-burned timbers; no ashes; no embers. It was as if the wooden parts of the city had never existed.

In the case of the second-rate structures—the ordinary “brick buildings” with brick walls and wooden interiors,—the result was much the same. The insides with all they contained disappeared completely, leaving only the bare bricks. Cast-iron columns fell into the basements; steel columns and beams twisted into an unrecognizable tangle. In many cases the brick walls themselves were split asunder by the fierce heat of the fire or were



Interior of Sloane Building

Photo by Aitken

dragged down by the falling of the interiors, so that many structures which before the fire had boasted five, six, or seven stories, rose hardly more than as many feet afterward, or disappeared completely in their own basements.

Buildings with concrete floors stood up much better, and generally retained their integrity; and the structures of modern steel frame construction, carefully "fire-proofed", also escaped destruction, although severely damaged. The whole "finish" in each was destroyed, including all marble, tiling, and plaster. Other portions suffered in varying degrees; some buildings almost had to be rebuilt, nothing but the steel frames and concrete floors being intact; others needed only slight repairs.

The effect of the fire on these classes of buildings will be best seen in connection with the study of the various building materials. It is interesting



Parrott Building

Photo by Aitken

to consider these somewhat in the order in which they are exposed to the influence of a fire attacking them from without,—the fire test to which they were subjected in the conflagration.

(The buildings of San Francisco had practically no protection by wired glass or fire-proof shutters. In the wholesale district iron shutters (hinged at the sides) were commonly used to protect doors and windows, but did not prove at all effective in preventing the entrance of the flames. In the finer buildings, however—the “fire-proof” sky-scrapers—there was no such protection of any kind; excepting one structure with metal-sheathed window frames, all had ordinary windows which afforded no barrier at all against the fire. For this reason the fire had no difficulty in traveling from one building to another. In all alike—even the “fire-proof” buildings—a little flame from without soon set fire to the whole interior.

Before passing to the consideration of the fire-resistive character of these interiors it may be well to devote a little attention first to the effect of the fire on exterior materials.

Of the materials commonly used in the exteriors of buildings, stone of various kinds proved to be the poorest in resistance to fire, and hard-burned brick and terra cotta the best. Where granite was subjected to a fierce fire it scaled off so badly that it seemed almost to have melted away. Two of the granite columns in front of a sporting goods store in the Hobart Building were reduced to less than half their former thickness, and the walls of various buildings where granite was used show

the same result. Marble, of course, split and chipped very badly. The lower part of the Mills Building's walls, for instance, were ruined in this manner; and at the Y. M. C. A. Building one of the beautiful marble columns of the classic doorway was burned away through its entire thickness.

Many of San Francisco's buildings were faced with sandstone; it was used, for instance, in the Call, James Flood, Mutual Life, Kohl, and Shreve Buildings. In all of these a great deal of the facing stone has had to be replaced because of the damage wrought by the fire; in the Shreve Building, for example, almost all of it had to be taken down.

Common brick lasted much better, being almost undamaged except in a few special cases. At the Iroquois Apartment House, for instance, the sandstone facing is so completely destroyed that a great deal of the brick behind it is exposed; yet the latter is in good condition.

On the other hand the special cream-colored brick used in the walls of the Merchants' Exchange Building and the enameled brick of the center court there were so badly chipped and scarred that practically all of it had to be taken down. But both the side walls and the court walls of that building were extremely thin, and the brick in them was therefore subjected to unusual heat.

Several of the newer buildings had façades composed wholly or very largely of terra cotta. These were only slightly damaged by the fire. The front wall of Hale's, for instance—which is wholly of this material,—is so little damaged that it is to remain as part of the new steel frame structure;

yet the fire in the building—which was used by a department store—was so fierce that the whole interior was consumed and nearly all of the brickwork of the walls fell in. At the adjoining store—a six-story furniture house—the fire was so hot that nothing is left of the building except a bit of the steel frame, a portion of the brick side walls, and the terra cotta front, whose delicately modeled blocks are absolutely intact. In a few instances such blocks, when in places where the heat was exceptionally intense—above windows, for example—have been broken; but such cases are rare. In one building, where very light and very elaborately designed blocks were used, they were practically all ruined. In that case, however, it is to be noted that the walls were very thin and were very close to the steel of the frame work, and that the sides of the building were nearly all window space.

To make a building fire-proof, it is not enough that it be constructed of material that will not burn. The various kinds of stone, for instance, are so chipped and cracked by the intense heat that they have to be replaced after even an ordinary fire in the building; and in a great conflagration walls of such material would not stand. Steel and iron, too, while incombustible, are not at all fire-proof, as fire deprives them of their strength and causes them to twist and buckle. The modern fire-proof building—fire-resistive is a better designation—is indeed composed of materials that will not burn; but in addition its vital portions are carefully protected. In a “steel frame” building the weight is supported entirely by the frame, which even holds up the



Photo by Waters

Sagged Floors in Kamm Building

walls. The frame, in turn, is encased in some material intended to protect it from the heat of a fire, and prevent its being warped out of shape. Finally, the floors and partitions are made of some material more or less fireproof. In such a building a fire started in one room could be easily put out, and would not extend to any other room—unless the rooms had wooden doors. But against a general conflagration even these precautions are insufficient to prevent the furniture and furnishings of each room in the building burning out—either singly or all at once.

When the fire had entered a San Francisco "skyscraper" it found little to stop it; its progress from room to room was easy. Apart from the furniture and cupboards, the wainscots, chair-rails, and floors were all of wood, and the wooden doors, arranged in line, gave ample opportunity for a draft, as did the open elevator space. One of the great office buildings—the Kohl—had its woodwork all metal-sheathed; in the others there was nothing to prevent a fire, once started in one room, from gradually extending to every other one.

The favorite materials used in San Francisco for covering structural work of steel and iron, so as to protect it from fires, were hollow tile blocks, concrete, and cement or plaster on wire mesh or similar fabric.

The latter was applied at varying distances from the column or beam to be protected,—the air space being used as part of the protection,—and sometimes two such sheathings were used, one within the other. At the Merchants' Exchange

Building this method of fire-proofing the columns was successful, although partitions of the same sort were disintegrated. On the other hand the fire-proofing on the columns of the Sloane, the Kamm, and the Rialto Buildings failed to save them. At the Wells Fargo Building the outer coating of cement and mesh around the columns was practically destroyed, but the inner remained and was sufficient to protect them.

The hollow tile also proved insufficient, particularly as a protection for columns. The condition of many buildings, just after the fire, showed that the heat had been sufficient to break down the tile protection; tiles lay about the floors; partitions were down; columns were exposed. Where tile floors were used it is found that the under-side of the tile had cracked and fallen away, because of the heat from below; in some cases the top was also broken away, so that the whole tile arch had dropped out, exposing the beams it was intended to protect.

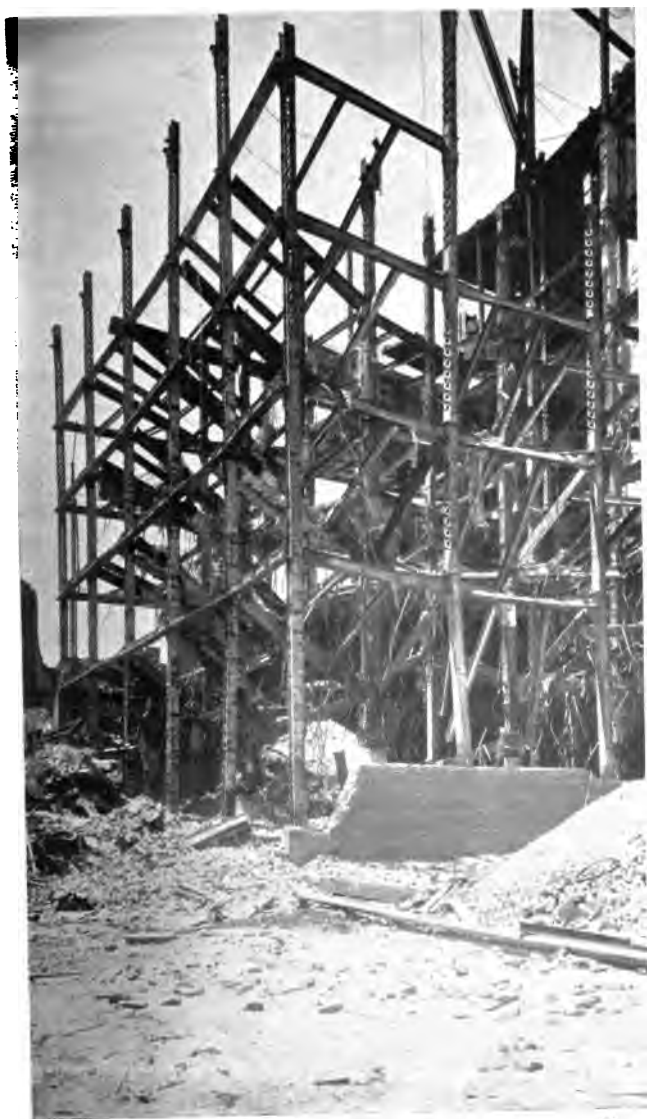
Concrete protection of columns, on the other hand, seemed to be very efficient. A striking example of this is the case of Fuller and Company's eight-story warehouse. It was used for the storage of paints and oils, and so burned with an intense heat. Its wooden floors were soon consumed; its brick walls fell, carrying the framework down with it. But even under these exceptional conditions the concrete was intact, and not even broken off from the steel. In the extreme cases of structural damage, too, (such as will be mentioned later), it is noticeable that concrete floors held together as long

as there was any chance of their doing so—in the Sloane Building, for instance, and in the Kamm Building, our picture of which was taken after the floors had been removed.

It is on the protection of its framework (particularly its columns) that the life of a “fire-proof” building depends. In many cases in the San Francisco fire the framework was threatened and indeed successfully attacked, and only the dying out of the fire (from lack of anything more to burn) prevented the buildings from complete destruction. That even a modern building of the best type could be destroyed by such a fire was made evident.

Any of San Francisco’s great office buildings would have withstood an ordinary fire starting in any one room; but in the intense heat of the conflagration when the fire once took hold of such a building it soon spread and converted the whole interior into a roaring furnace. Soon the mortar of the tile partitions lost its life and crumbled away; soon the tile themselves began to fall to the floor. In time the tile surrounding the columns would give way similarly and expose the latter to the fire’s action. The steel heats to white incandescence; its strength leaves it; the weight resting upon it slowly settles. The column bends, flares out; buckles; the framework above settles and strains itself at every joint.

In some cases this would happen only in one or two places in the building; in others, everywhere. Such a buckling, repeated on several floors, could result only in twisting and straining the frame so that rivets are sheared and beams pulled apart, to



Rear of Kamm Building

Photo by Waters

drop through to the floor below and perhaps carry that, too, to the basement.

Such complete destruction occurred, indeed, in some of the second-class buildings—those with cast-iron columns, steel floor beams and concrete floors. Through the breaking of columns the floors of such buildings were made to sag so much that the floor beams pulled away from the shoulders on which they rested, and, with the floor itself, dropped through. The two buildings on Mission between First and Fremont show this result in part. The adjoining portions of each building for a width of about twenty-five feet, and for almost the full depth of the building, have no columns or floors at all, the whole interior—columns, beams, girders, and concrete arches—having gone down together into the basement. The small picture showing the flaring and breaking apart of a cast-iron column in the building at First and Mission streets, and the companion view showing the settling above, indicate what happened in both these structures.

The same result was reached in much the same way at the Sloane Building, a furniture store of similar construction, comprising seven open lofts and basement. Almost the whole interior settled; the center of each floor fell away; a courtyard, open to the roof, came into existence. The manner in which this destruction was achieved is clearly shown by the columns in the basement under the portions that did not break apart. Some of them are merely thickened or bulged out, symmetrically, taking the shape of a finger wearing a thick ring; others, where the bulging was greater, are broken across, and tele-

scoped. In some places a settling of nearly three feet was produced; in the center a slightly greater subsidence unseated the floor beams and dropped everything into the basement.

In all these buildings the columns were protected by wire mesh and cement, fitted closely around them. In the finer buildings,—the skyscrapers—the tile fire-proofing seems to have held long enough to prevent general settling. In some of them many of the columns buckled enough to produce a slight subsidence; but almost all these buildings escaped such destruction as came to the second-class structures.

That result, however, was almost reached in the Kamm Building, on Market street, just above Third. This building had a light steel frame supporting the interior. The floors of the whole rear portion of the building were tipped to an angle that would have made walking on them almost impossible, just as if some giant had smashed them down from above. This building, it should be said, had a very severe test, having been stocked throughout with wall-paper.

Through some such series of events as has been outlined (assisted perhaps by the falling through of its heavy linotype machines from the top floor) half of the old Chronicle Building completely collapsed, inside of its walls, leaving the latter an empty shell. The structure had been carefully "fire-proofed"; its floors and partitions were of terra cotta tile, and the same material protected its wrought-iron and steel frame. Its walls, however, were self-supporting, and braced by a great

deal of iron put in to stiffen them against earthquake shocks. If they had been sustained by the framework, (as are those of more modern buildings) they would have gone down in the fall of the latter, and the anomaly presented of a well-protected building being destroyed by fire. A part of the Rialto Building, indeed, almost met this very fate, and at the Hall of Justice the weight of the steel cells in the rear portion of the upper story was sufficient to send them crashing down to the basement, tearing out the whole rear of the building, wall and all, as they went.

The Parrott Building, in which the Emporium department store was located, furnishes another instance of almost complete destruction. The first and second floors were occupied by the store, and were intended to be fire-proof, the floor arches were of hollow tile, and the columns were encased in the same material. Above the third floor (there were seven stories in front and five in the wings and rear) the floors and their supports, and most of the partitions, were of wood. The store itself had no partitions, and afforded an intense heat because of the great quantities of inflammable merchandise which it contained. Almost all of the front portion of the building—over the drygoods, suit, and toy departments—is open from the basement up; the floors and steel frame alike have been destroyed. To a certain extent this may be due to the falling of safes from above, but the breaking away of the tile flooring of the third story in places where the second floor is intact (elsewhere in the building) indicates that most of the destruction is due to fire alone.

Such being the effect of fire on the best buildings, the question may well be asked—What advantage is there in such a building or in a city composed of such alone? It might seem that there is no advantage; but in reality there is. Such a building—particularly if it has proper windows and window casings—is slow to catch fire; and a fire in it, even in a conflagration, is more readily handled than in a building of less resistive character. Where there is no water, and no fight can be made, such a building becomes as complete a wreck, almost, as another; but otherwise it may be saved with comparative ease. And as to the safety of a city, it is to be noted that that is enhanced by having a number of fire-resistive buildings even if none are entirely fire-proof; for if buildings do not ignite quickly, and fires within can ordinarily be controlled, conflagrations are not likely to arise or spread among them.

XII

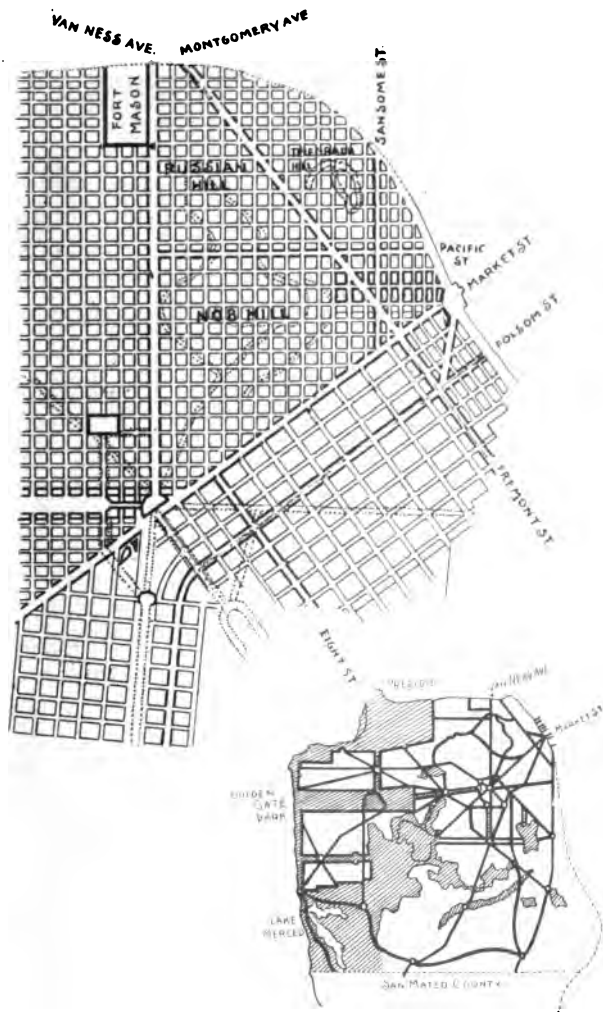
THE NEW SAN FRANCISCO

Immediately after the fire talk of a greater and grander San Francisco arose—a city which no earthquake or fire could harm. The fire, of course, was for a time of paramount interest, and in the plans for the city-to-be, an all-sufficient water system and wide boulevards like Van Ness avenue were prominent features.

That San Francisco would be rebuilt and would continue to be the metropolis of the Pacific was never in doubt. It was impossible for the residents to question its future, for their own will and enthusiasm assured them of the glorious destiny of the rebuilt metropolis. But apart from the energy and determination of its citizens, San Francisco's future is assured by its position. It is still the natural point of entry for the empire behind—an empire now of half-revealed wealth. It is the gateway through which all the wealth of the West must pass; the nerve-center of all the life of the coast region.

It was with some realization of this that the people of the city determined that the new San Francisco should be worthy of its position in every respect. The wiping out of the old city made possible the building of a new one that should be modern, convenient, beautiful, and fire- and earthquake-proof.

For some years an agitation had been going on in San Francisco for the extension of its boule-



Map Showing Proposed Changes in Streets in the Downtown District

Small Map Shows Proposed Parks and Boulevards in the Burnham Plans

wards and park system, and for the general improvement of the city. Bonds had been voted for certain changes—the extension of the Golden Gate Park “Panhandle” to Market street and the acquisition of some small parks, besides great improvement in streets, sewers, schools, and hospitals. The Society for the Adornment and Beautification of San Francisco had had Mr. D. H. Burnham, the eminent architect, work out a comprehensive plan of streets, boulevards and parks, intended to combine convenience and beauty in the greatest possible degree, without radical changes. It was estimated that the execution of the plan would cost \$50,000,000, and that it could be accomplished in fifty years.

In its main features the plan provided for an elaborate system of parks and boulevards surrounding the city, and for the creation of broad avenues in the business and residence districts, by widening existing streets and cutting others along diagonal lines. Some of these avenues were to afford easy access to the various hills; others were to facilitate traffic by cutting across the old rectangular blocks. Splendid boulevards were to radiate from Van Ness avenue and Market street, at which it was planned to group public and semi-public buildings, thereby forming an imposing civic center at the city's future central point.

When the fire swept clean all the downtown part of the city, it was felt that by the destruction of buildings that would otherwise have been in the way the immediate execution of the plans had been made possible, at a reduced expense. The “sub-committee” went over the matter in detail and re-



Call Building

Photo by Waters

ported in favor of making certain changes in the burned district—some immediately, and others within five and ten years, respectively. The Supervisors, approving the report, could only state their intention to follow it. The Treasury would not allow of anything else being done at once, as the fire had wiped out a third of the taxable property in the city. With the adoption of the report the question was for a time laid aside, until the problem of financing the project could be solved; for while the fire had lessened the expense of the work it had also lessened the city's ability to pay for them. Then, too, a few property owners had begun to complain that they would be injured by the proposed changes.

In the meantime the immediate work of rebuilding the city had become all-important, and the plans for the City Beautiful gave way, in the public mind, to the reconstruction of the actual city that immediate business necessities demanded. For the time being San Francisco was in the anomalous condition of having an enormous amount of business and no place where it could be transacted—the trade of a metropolis, and the facilities of a village.

In the immediate rebuilding of the city, therefore, the first essential was speed; and while many concerns contrived to put up substantial edifices many others had to be content with mere shacks. But after July all construction was required to be in accordance with the new building ordinance.

The new ordinance, itself, did not provide for radical changes in the city's manner of building; but great good lay in the fact that all of the burned



James Flood Building

Photo by Moller

district—except outlying residence sections—would be within the “fire-limits”, and that all new buildings would have to be of a substantial type. Apart from allowing the use of re-enforced concrete—which had always been forbidden, except for floors, because of political influences—the ordinance was notable as prohibiting the erection of any except steel frame buildings above 102 feet, and limiting even the latter to one and one-half times the width of the street. Within the fire-limits no frame structures will be allowed.

Within six months after the fire the work of again covering the burned district with substantial structures was well under way. Permanent buildings costing many millions had been started, including many of steel frame construction, and re-enforced concrete. The work which had been so long delayed by insurance troubles, and by imperative need of some immediate provision for the resumption of business, was begun in earnest. In a few years the city's new downtown district will be far better than the old would have become in a decade.

The new city that is being erected in the burned district will be fire-proof in the sense that any region covered with brick and steel buildings, without many wooden ones, is fire-proof; no great fire is likely to start in it, and any that starts should be easily conquered. It will have more protection, however, than that afforded by the ordinance relative to fire limits; there will be window protection and sprinklers and tanks, and here and there really fire-resistive buildings—buildings as nearly fire-proof

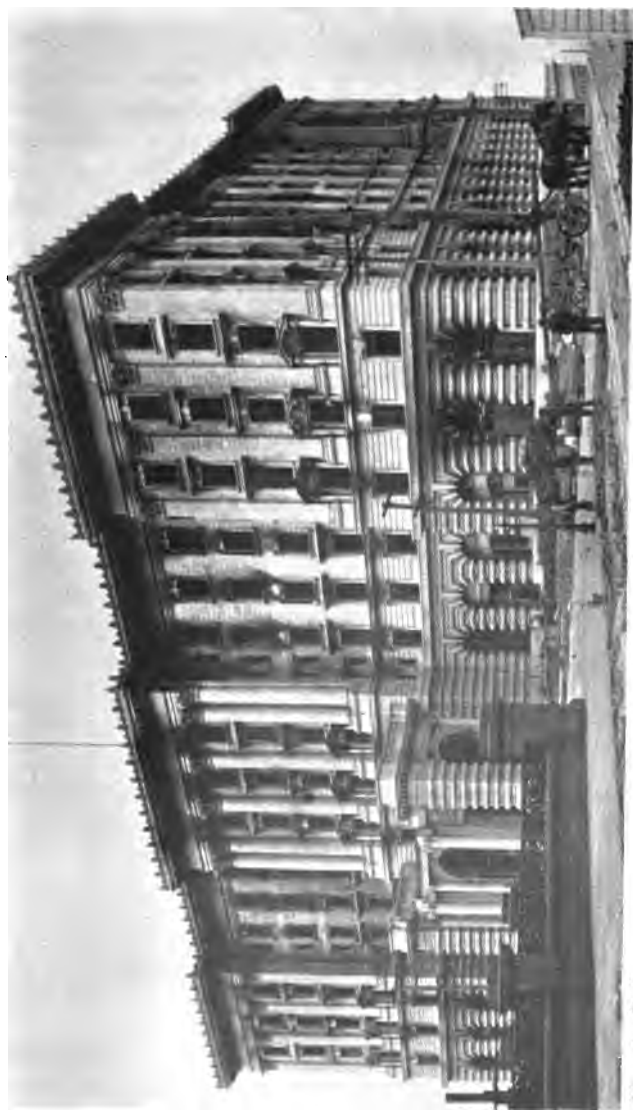


Photo by Moller

Fairmont Hotel

as any can be made. There will be no large wooden buildings downtown, and not many such either large or small; as long as the "temporary" structures last there will be some, but they will be few and scattered.

In the matter of fire-fighting, too, there will be a great improvement; for it is almost certain that a system of salt water mains and high pressure pumping stations will be established. With an inexhaustible supply of water thus made available there should be no fear of any fire that can get started. It is expected that such a system will be installed early in 1907, for the protection of the stores on Van Ness avenue and Fillmore street.

In the new city it is evident that there will be some shifting of business centers. The fire has hastened changes that would otherwise have come slowly, and brought about a better adjustment.

The change made by the wholesalers has already been mentioned in connection with the general resumption of business. When everything came by steamer to the water-front north of Market street the adjacent district was the natural site for wholesale business; the land near the railroad, far to the south, is the obvious place for it now, for the same reason—except in the case of the fruit and produce trades. So it may be expected that the temporary wholesale district, south of the freight yards, will become permanent.

The region known as South of Market street, formerly given over largely to cheap tenements, has been prepared by the fire for better use. The shift on the part of the wholesalers, and the general



Mills Building

Estey

movement toward outer Market street, have made it valuable for business purposes; the tenements, therefore, are not likely to be rebuilt. The same thing is true, to a great extent, of the residences in the hotel and apartment house district, west of Powell, which has now been included within the fire limits. In both cases the destruction of existing buildings has hastened the inevitable invasion of business.

In so spreading out into these new fields, the business districts will be relieved of much congestion and the transaction of business facilitated. A similar spreading-out is likely to result in the case of the residence districts. People who have lived downtown have been driven out, past the Western Addition and the Mission, into the outlying districts. They are in the position of building up a new city; one, however, whose suburban trolley lines are already in operation. On the whole, it seems that the new city will be much less crowded than the old. There will be room for private gardens and lawns, and for public parks and playgrounds, and for much of the pleasure of living that has been crowded out in the congestion of most large cities.

With the realization of this, and with the settlement of the immediately pressing problems, come renewed interest in the Burnham plans and their suggested modifications. After careful investigation, a somewhat changed plan was presented for immediate execution, with a detailed statement of the expense involved.



Photo by Waters

Spring Valley Water Company Building

The changes proposed by this last-mentioned plan are shown on the accompanying map of the downtown district, to which they are confined.

They include the widening of Fremont street to the water-front, the creation of a new avenue from the ferry to Folsom and Fremont, the widening of Folsom from the bay to Tenth street, and the removal of Rincon Hill (from Fremont to Third, Folsom to Bryant) by extensive grading. These changes would result in great benefit to the South of Market district. The widening of Eighth street, which passes through the outer portion of this region and reaches the new wholesale district and the Potrero, is also proposed.

North of Market street the new plans are concerned mainly with changes in the old wholesale district. Montgomery avenue, says the report, should be extended through to Market and Fremont, forming, with the latter, a wide thoroughfare from North Beach to the region of the mail docks. In addition, it is proposed to widen Clay and Sacramento by closing Commercial street, a narrow street between them; to widen the roadway of Sansome street, and level its grade, passing it under Broadway, thereby providing easy access to the manufacturing region at the foot of Telegraph Hill. Finally, the widening of Pacific street, which passes over the saddle between Nob Hill and Russian Hill, and affords a practicable grade from the ferry to the Western Addition, is suggested. All these changes, according to the estimate in the report, would cost about \$6,500,000, and would add ten times their cost to the city's assessed valuation in ten years.



110 by Aitken

Merchants' Exchange and Kohl Buildings

In this way they would pay for themselves and soon bring in an annual profit over the amount required to pay off the necessary bonds. The same report places the cost of an auxiliary salt water fire system at \$1,500,000. There seems every probability that all these changes will be made in the near future.

It is very likely also that other improvements included in the Burnham plans will be made within a short time—changes which combine esthetic value with financial advantage. Such, for instance, are the proposed series of boulevards up to and around Nob Hill and Russian Hill, and the wide avenue connecting Van Ness avenue and Market street with the Mail Docks at the foot of Second street.

The small map shows in a general way the system of parks and boulevards proposed by Mr. Burnham. The diagonals, it will be noted, connect the various parts of the city conveniently. Reference to the bird's-eye view of San Francisco, presented in an earlier chapter, will show the general scheme of the parks planned for the city's surrounding hills, and a splendid encircling boulevard.

To the people of San Francisco the proposed boulevards and avenues are extremely interesting as fire-barriers. It was in this connection that they were extensively discussed just after the fire, and unquestionably the advantages of such barriers will weigh largely in deciding the fate of the proposition. Had such boulevards been cut through before April eighteenth, it is not at all likely that the conflagration south of Market would have gone beyond Eighth street; or that the fires north of Market would ever have crossed Sansome.



Hall of Justice

Photo



Union Trust Building

Photo by Waters

Of the people of the new city it is scarcely necessary to speak; for it is but the material city that has been hurt; the real city is uninjured. The spirit is there; the "atmosphere," the city's life. Once again, San Francisco, the joyous-hearted, is pulsing with the vigor of achievement, full of the joy of living. Soon will come a time when all that has been suffered will seem but a passing storm, which for a time made all dark and drear. Such a storm quickly clears away; and there, as before, are the sun-clad hills and beautiful lakes and ever-changing sea; and, too, the placid bay and Tamalpais, and the far sweep of mountains.

7 100

APPENDIX

1

THE RECORD OF THE EARTHQUAKE

The diagram represents the record made on the seismograph at the Chabot Observatory at Oakland. Professor C. Burekhalter, who was in charge of the observatory, says of this record:

"It shows that the main motion was gyratory, but the wave like and the up and down motions were present also. The dashes and dots represent the up and down motion. The instrument enlarges the diagram, the real motion of the earth's surface being a little over half an inch, but not so much as six-tenths of an inch. The time was 5.14:48 A. M. April 18 and the duration 28 seconds. The shock was so violent that the pen ran off the plate several times; that is, the instrument was not capable of recording so severe a shock.

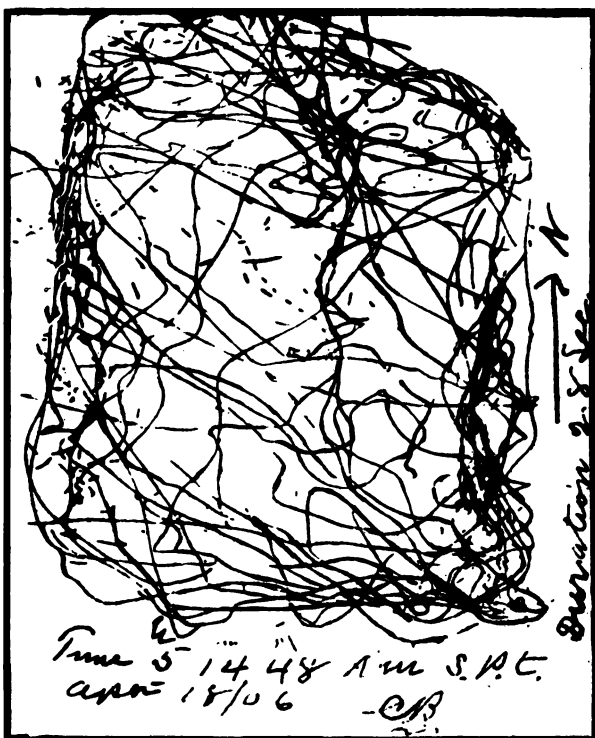
According to the Preliminary Report of the State Earthquake Investigation Committee, (1) "The time of the beginning of the shock as recorded in the Observatory at Berkeley was 5h 12m 6s A. M., Pacific standard time. The end of the shock was 5h 13m 11s A. M., the duration being 1m 5s." Professor A. O. Leuschner of the University of California states (2) that the principal part of the earthquake came in two sections, the first a series of vibrations lasting about forty seconds, and that the vibrations diminished considerably during the following ten seconds, and then continued with renewed vigor for about twenty-five seconds more.

The record made at the University Observatory at Berkeley shows that the motion of the earth's surface there was about half an inch; but according to Professor Leuschner it was undoubtedly greater in San Francisco. Professor A. W. Whitney states (3) that the amplitude of vibration at Mt. Hamilton was about an inch. The period of the vibration was about one second.

The preliminary tremors were recorded by the instrument in the Weather Bureau Laboratory at Washington, D. C. for about six minutes before the main shock. These preliminary vibrations reached Tokyo about eleven

and a half minutes after they were felt in San Francisco, and lasted nine and three quarters minutes. In Tokyo and in Washington the actual motion of the ground was a little less than half an inch, but, because of its slowness, it was perceptible only to the instruments. At Birmingham, England, the preliminary tremors lasted twenty-five minutes. (4.)

These preliminary tremors occur because some small waves of vibration travel through the earth at the rate of



Seismograph Record of the Earthquake

about seven miles a second, while the larger waves travel more slowly—at about two miles per second, apparently moving on the surface. \ It is this preliminary vibration that produces the rumbling often heard just previous to earthquake shocks. Such a rumbling sound was heard as far away as Death Valley, California (more than four hundred miles from San Francisco) in connection with the earthquake under consideration. \ Because of the different speeds at which the preliminary and main vibrations travel, the duration of the introductory tremors enable the approximate center of the disturbance to be located. \ The observations made at the Lick Observatory on Mt. Hamilton (about ten miles south of San Jose) indicate that the shock originated about ninety miles north of that point—that is, in the neighborhood of Tomales Bay. \

With acknowledgments to

(1.) "Preliminary report of State Earthquake Investigation Commission."

(2.) "The Scientific Aspect of the California Earthquake," A. O. Leuschner (U. C.) Pacific Monthly.

(3.) "Report of Chamber of Commerce on Insurance Settlements."

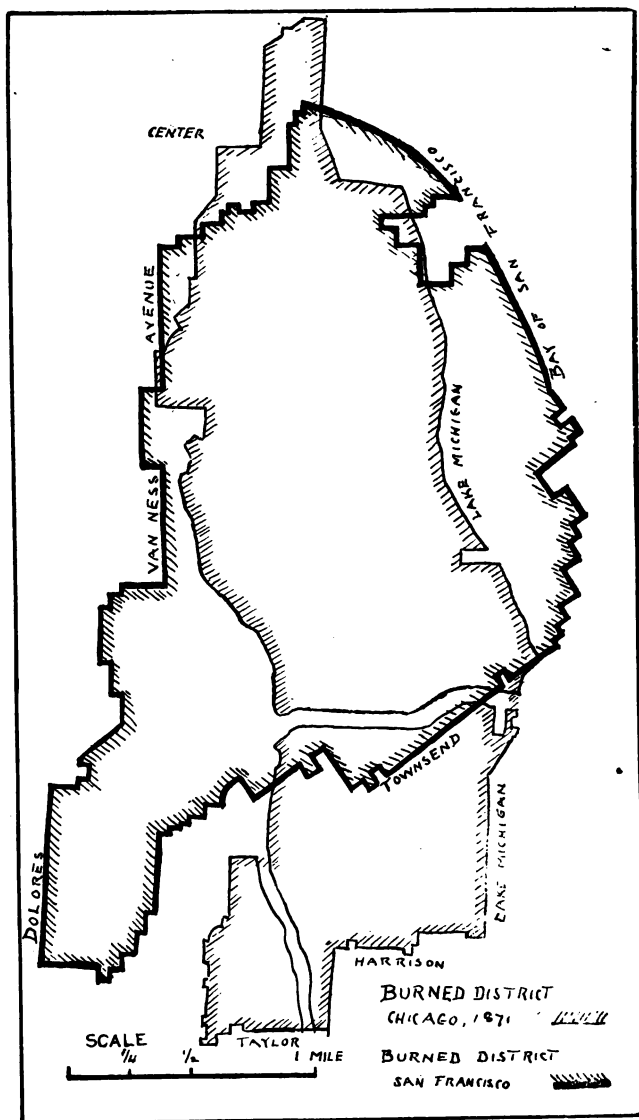
(4.) "The Scientific Side of It." A. G. McAdie (U. S. Weather Bureau) Sunset Magazine.

STATISTICS OF THE FIRE

| The area of the burned district was 2593 acres, or 4.05 square miles; the area of the district burned over by the Chicago fire was 2124 acres, or about 3 1-3 square miles. /
The Baltimore fire of February 7th and 8th, 1904, burned over 140 acres, or less than 1/4 of a square mile.

| The Chicago fire burned 17,450 buildings; the San Francisco fire, about 25,000. /

The property loss in the Chicago fire was \$196,000,000, with insurance amounting to \$88,000.00, of which about



Comparison of Burned Districts in the Chicago Fire and

half was recovered. The loss in the San Francisco fire is estimated by the Chamber of Commerce at \$350,000,000, and the insurance at \$235,000,000; it is calculated that payments will equal about 80% of the total amount.✓

As a result of the Chicago fire forty-six insurance companies, of 255 that had risks in that city, failed; of the 106 that had risks in San Francisco, five have gone into the hands of receivers.

CONCLUSIONS AS TO BUILDING METHODS.

The lessons to be learned from the earthquake are simple but significant. There is nothing new in them; the earthquake merely emphasized certain matters that had been somewhat overlooked. Bearing in mind the fact that it is only in buildings on made land that unusual precautions are required and that in other cases buildings conforming to the standard of good building elsewhere are safe, they may be summarized as follows: Foundations should be made of ample strength, and should as far as possible be in one piece, rather than in separate pieces. On made land or soft soil of any sort, foundations for heavy buildings should be deep.

Superstructures should be well fastened to foundations, and should be thoroughly braced. Frame structures should have the wall studding well braced, diagonally. Brick walls should be laid in cement mortar and should be held and braced together by the joists and by earthquake rods, well anchored. Parapet walls and gable-ends should be securely braced. Copings and cornices should be of light material. Brick and stone should in all cases be well bonded, and facing courses never laid as a veneer.

With proper attention to these well known requirements San Francisco buildings should be immune from damage by any ordinary shock.

The lessons of the fire are likewise more important than novel; they, too, call attention to what was known before as to protection against ordinary fire.



Photos by Waters and Derleth
Bullock and Jones, and Monadnock Buildings

That certain materials break down under fire influence and have to be extensively repaired, or replaced, was shown clearly. It was demonstrated, for instance, that stone of various sorts (including the marble of interior finish and stair treads), elaborately modeled hollow terra cotta (where severely tested) and ornamental iron work, are destroyed by a severe fire; that terra cotta tile floor arches and blocks of the same material used for partitions and for protecting steel work have to be replaced to a large extent; and cement on wire almost wholly; and that the steelwork itself sustains serious injury wherever such fireproofing fails.

In connection with the possible spread of a fire, and the risk of conflagration, the following may be noted:

Ordinary brick-walled buildings offer almost no resistance to the spreading of a fire; and that even the most nearly fireproof buildings have many serious defects as far as resistance to conflagration is concerned. In a general conflagration such a building is menaced, throughout its upper stories by the intense heat of the upper air. For this reason solid walls without openings should be provided wherever possible.

Window openings should be small and few, and should be protected by the use of metal sash and wired glass where possible, and by fire-proof shutters or screens, automatic or otherwise. It is important that interior partitions, floors, etc., be made fire-proof to minimize the spreading of fires within buildings. Doors, etc., should be metal-sheathed. If hollow tile partitions are used, they should be better built, so as to hold together more solidly. It would seem eminently desirable that office buildings, which necessarily have many window spaces, should have a really fire-proof wall—say of brick, with wired-glass transoms and metal-sheathed doors—to divide the front rooms from the others and prevent the spread of a fire through the building after it had effected an entrance. Such construction would have saved, for instance, at least three-fourths of the Merchants' Exchange and James Flood Buildings.



Aronson Building

Photo by Waters

Vertical openings, such as elevator shafts and stairways, should be isolated by fire-proof walls if possible, and there should certainly be no combustible material adjacent to them, such as the usual room doors opening on central hallways. Both the Atlas and the Kohl Buildings seem to have been saved from destruction mainly by the fact that there was nothing combustible near the elevator shaft. The only really safe method, perhaps, would be to enclose the elevator in a brick-walled shaft with automatic fire doors at the openings on each story.

STATEMENT OF RELIEF FUNDS

(From Report, Nov. 17, 1906)

Receipts from cash subscriptions.....	\$6,213,259.28
Expenditures	4,628,452.23

As follows:

Housing the Homeless.....	1,234,094.43
Relief of Hungry.....	1,146,412.68
Rehabilitation	1,023,166.51
Sanitation	231,020.74
Transportation	171,470.53
Sick and Wounded.....	147,899.90
Construction and Operation of Permanent Camps	140,805.56
Relief of other Cities.....	138,934.00
General Administration and Accounting.....	120,379.67
Construction and Operation of Relief Sections	92,804.21
Clothing Relief.....	66,255.09
Special Relief of Hospitals and Charitable Institutions	55,774.45
Red Cross Administration.....	23,383.02
Reorganization of City.....	23,033.36
Appropriations for Special Purposes	5,780.00
Preliminary Relief, Organization and Adminis- tration	4,298.00
Miscellaneous	2,940.08
Excess of Receipts over Expenditures.....	1,584,807.05



Photo by Waters
Mutual Savings Bank Building

In addition to receipts noted above, funds aggregating about \$3,300,000.00 are held by relief organizations in other States—chiefly the National Red Cross.

The above report shows that the expense of administration has been about three per cent. of the amount expended.

INSURANCE SETTLEMENTS

The report of the Special Committee of the Chamber of Commerce on Insurance Settlements shows that the following insurance companies paid claims in full or with discounts (from 2 to 5 per cent.) for cash:—

Ætna of Hartford, Alliance of Philadelphia, American of Newark, American Central, Atlas, California, Citizens, Connecticut, Continental, German Alliance, German American, Glens Falls, Hartford of Hartford, Home of New York, Insurance Company of North America, Law Union & Crown, Liverpool & London & Globe, London Assurance Corporation, Manchester, Mercantile Fire & Marine, Michigan Fire & Marine, New Hampshire, New York Underwriters, Niagara, North British & Mercantile, Northern of London, Northwestern National, Pelican, Pennsylvania, Phoenix of London, Queen, Royal, Scottish Union & National, Security of New Haven, Springfield, State of Liverpool, St. Paul Fire & Marine, Sun, Teutonia, Union Assurance, Victoria.

The same report shows that most of the other companies made settlements at from 60 to 90 per cent., that the American of Freeport, American of Philadelphia, Dutchess, German of Peoria, and New York paid 50 per cent. or less, that the Atlanta-Birmingham, Austrian-Phoenix, North German of Hamburg, Rhine and Moselle, and Transatlantic denied liability and withdrew from the State, and that receivers were appointed for the German National, German of Freeport, North German of New York, Security of Baltimore, and Traders of Chicago.

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